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ABSTRACT

This report offers insight into how schools can find quality teachers to staff their classrooms by examining how districts responded to the teacher shortage over the period 1999 to 2002. It presents results of an 18-month study that analyzed data at 3 levels: a nationally representative database; a survey of 110 human resource directors across the country; and in-depth interviews with district and school administrators in 7 regions. The report disaggregates the national numbers associated with the problem and examines how districts in different parts of the country perceived its impact. It also identities the range of policies districts used to respond to the problem. Finally, the study attempts to determine the factors that constrained or facilitated district efforts to more effectively meet the demand for teachers. The analyses of the 1999-2002 shortage crisis suggest a two-fold challenge for policymakers working on teacher recruitment. First, because of the uneven impact of the shortage problem, governments need to approach teacher recruitment strategically, identifying policies that best match the problems their schools or district are facing. Second, it is equally important that districts and states identify and remove institutional barriers that thwart policy implications and constrain innovation. Appended are: Estimates of Teacher Late-Fill Rates by State (Sass 99-00); Human Resource Director Survey; District Administrator Interview Protocol; and Interview Respondents. (Contains 34 endnotes, 30 references, 7 tables, and 3 figures.) (Author)

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From the Headlines to the Frontlines: The Teacher Shortage and Its Implications for Recruitment Policy.

Patrick J. Murphy
Michael M. DeArmond

2003

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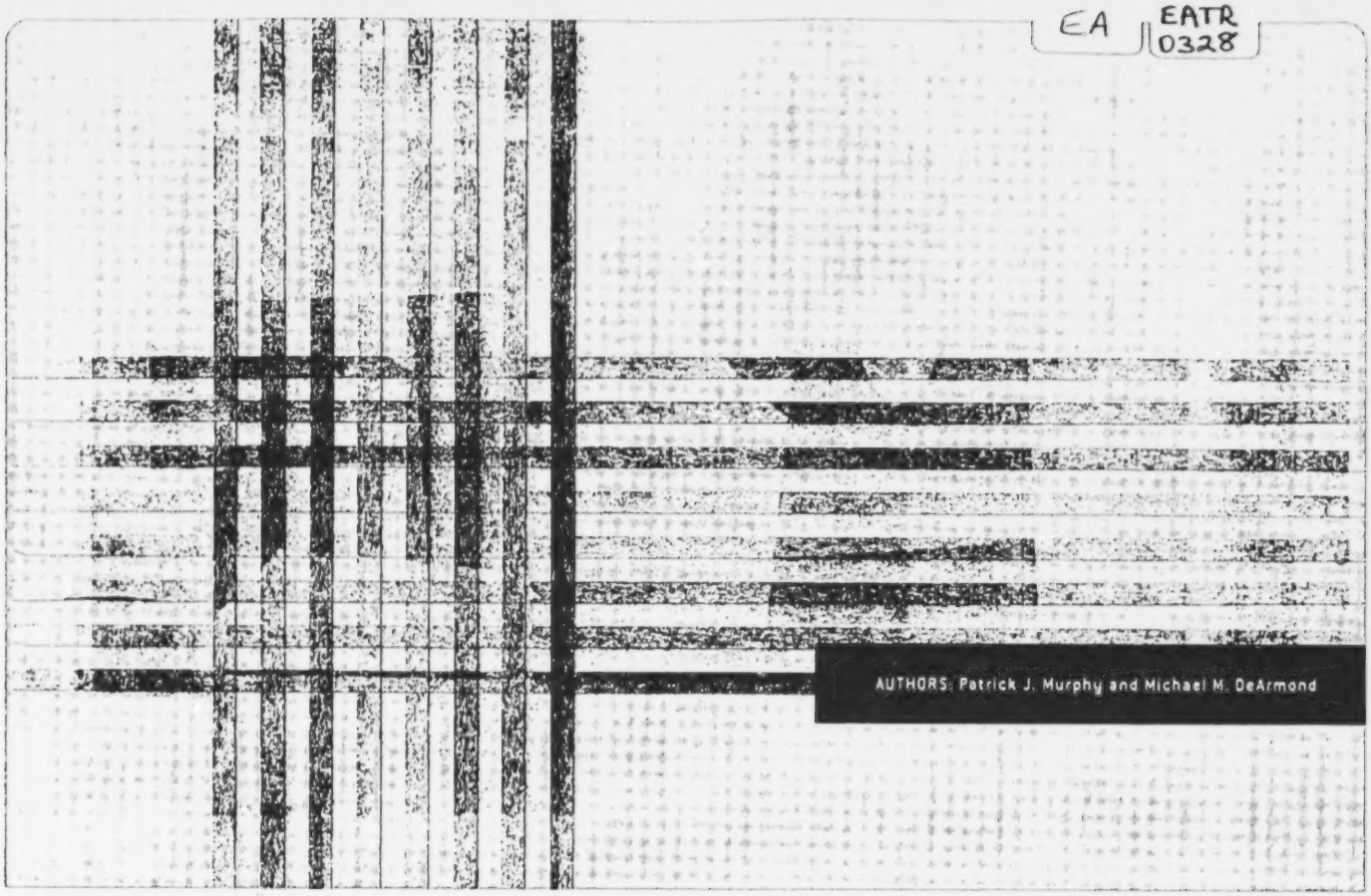

AUTHORS: Patrick J. Murphy and Michael M. DeArmond

FROM THE HEADLINES TO THE FRONTLINES:
THE TEACHER SHORTAGE AND ITS IMPLICATIONS FOR RECRUITMENT POLICY

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FROM THE HEADLINES TO THE FRONTLINES:
THE TEACHER SHORTAGE AND ITS
IMPLICATIONS FOR RECRUITMENT POLICY

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EXECUTIVE SUMMARY

Beginning in 1999, concern about the supply of teachers for the nation's elementary and secondary schools found its way to the top of the education policy agenda. Warnings about a national teacher shortage loomed in the headlines, raising serious questions about whether or not schools and districts could fully staff their classrooms. But as the economy slowed in the fall of 2002, the sense of impending disaster appeared to subside. News reports gave the impression that there was nothing like a good recession to take care of the once ubiquitous teacher shortage.

Unfortunately, this overly tidy resolution encourages us to move on to the next big education issue (No Child Left Behind implementation, state budget problems…) before understanding what the shortage problem was, and what its implications are for district human resource management. A more serious examination of the problem and the way districts responded to it suggests that, despite the fading concern, many districts will nevertheless continue to struggle to get and keep good teachers unless they make dramatic changes in the ways they recruit teachers.

This conclusion is based on three interrelated findings from an analysis of the U.S. Department of Education's 1999–2000 Schools and Staffing Survey (SASS), in-depth field interviews with district and school administrators, and a survey of public school district human resource directors.

Findings

First, the teacher shortage was not a monolithic problem. It's impact was uneven across geography, student demographics, and subject areas, with the most intense shortages affecting districts and schools with the most needy students.

- Urban districts and schools enrolling low-income minority students had the hardest time finding teachers.
- Foreign language and special education teachers were the hardest to find.
- Within districts, schools enrolling low-income minority students had the hardest time finding teachers.
- Regions faced shortages for different reasons, ranging from enrollment booms to high housing costs. The problem was most pronounced in the West and Southwest.

Second, districts favored broad policies such as district-wide teacher salary increases that, given the uneven impact of the problem, may have done little to meet the goal of placing a quality teacher in every classroom.

- Data from the U.S. Department of Education's Schools and Staffing Survey (SASS) show that only 4 percent of districts reported using intra-district incentives to attract teachers to "hard-to-staff" schools.
- The SASS data also show that only 10 percent of districts reported using subject-area incentives to attract teachers in particular disciplines (special education, math, science…)
- The author's survey of 110 human resource directors showed an overwhelming preference for across the board salary increases as a recruitment policy.

Third, key institutional factors limited districts'

ALTHOUGH THE SENSE OF CRISIS ABOUT THE TEACHER SHORTAGE IS GONE, THE NEED TO UNDERSTAND AND ADDRESS QUALITY TEACHER RECRUITMENT AND PLACEMENT WILL REMAIN URGENT FOR THE FORESEEABLE FUTURE.

abilities to strategically approach the task of finding quality teachers.

— Without up-to-date information technology or human resource expertise—especially around recruiting—districts struggled to get a handle on their staffing problems and opportunities.

— Departmental norms and values made it difficult for leaders to change the way central office personnel thought about and did their work.

— In districts with strong unions, contract-driven seniority-based teacher placements slowed down the recruitment, hiring, and placement of teachers, making it harder for districts to compete for top candidates in high demand subject areas.

Implications

Together, these findings suggest a two-fold challenge for policy makers. First, the findings point to the importance of choosing policies that best match the particular human resource problems a district faces. Policies that use the same approach for all teachers and schools (e.g., across the board signing bonuses) do little to address the areas of greatest need. Second, the findings suggest that today's staffing challenges require changing what district human resource departments do and how they do it. These changes include investing in technology and human resource expertise, working to change bureaucratic cultures in central office departments, and negotiating changes in collective bargaining agreements so districts and schools can be have more flexibility in the recruitment and assignment of teachers.

Removing institutional barriers and investing in new capacity, however, may, in some cases, be too costly—both financially and politically. Given this, localities may want to consider the creation of a new third-party institution to monitor the supply of teachers in their area. An independent, regional HR institution would allow districts to monitor labor flows, identify their magnitude, and investigate what drives them. If a district lacked good data about teacher supply and demand and had poor data management capacity, a regional third party clearinghouse and analysis effort could help it, and researchers, better understand the flow of teachers in and out of the classroom.

Although the sense of crisis about the teacher shortage is gone, the need to understand and address quality teacher recruitment and placement will remain urgent for the foreseeable future. In the very near term, urban school districts that serve large numbers of poor and minority children still start the year with substitute teachers in their classrooms. Special education, math, science, and foreign language teachers are still hard to find. Looking further down the road, No Child Left Behind implementation and state budget crises are likely to expose the shortcomings of current human resource management practices even more. It is time to redefine how education policy makers approach the recruitment and retention of teachers, with an eye toward addressing persistent and systemic distribution problems as well as the institutional constraints that limit districts' ability to cope with those challenges.

This report presents the results of an eighteen-month study of districts responses to the celebrated 1999–2002 teacher shortage that led us to these conclusions.

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1: INTRODUCTION

In March 2001, Florida Governor Jeb Bush outlined a set of initiatives designed to address his state's growing teacher shortage. Among his proposals were a $1,000 signing bonus for all new teachers in the state, $50 million to boost school district efforts to retain teachers, and the accelerated rollout of an alternative certification program. "We must" Bush told legislators, "begin a 10-year project to recruit and retain 160,000 teachers to meet the projected demand" ("Gov. Bush Aims to Keep Teachers," 2001). In the spring of 2001, Bush was not alone issuing this kind of challenge. According to an Education Week analysis, 28 governors joined him in making teacher pay increases a priority for 2001 ("Lawmakers Plunge Into Teacher Pay," 2001). Indeed, state, local, and national decision makers across the country warned of a teacher shortage and called for a response. The backdrop for these warnings was the daunting statistic that over the next decade the nation's school districts would need to hire over 2 million new teachers. In Florida and elsewhere, the teacher shortage was near the top of the education policy agenda.

As the economy slipped into recession in the fall of 2001, the sense of an impending disaster appeared to subside. Articles on the topic now offered heart-warming tales of laid-off workers who decided to become teachers. The gap was filling in, and the doom and gloom predictions were beginning to recede. Some observers even began to question whether things were ever as critical as the public was led to believe. Was there anything to worry about after all?

The question was understandable. At the peak of the reporting on the shortage, there was surprisingly little systematic information about the problem's impact. Policy-relevant data to guide state and local decision makers was particularly hard to find. Instead, the issue was often presented in a dramatic, one-two punch: an anecdote about a school or district struggling to hire teachers followed by dire statistical warnings about the problem's overwhelming national scale. At the time, this impressionistic view of the problem left some policy makers to speculate about the shortage's effect while reviewing their policy options. Today, the residue of this anecdotal formulation makes it hard to pin down what actually happened.

And yet, understanding what actually happened and how districts responded to the celebrated teacher shortage can offer insight into an enduring and critical question: how can we provide an adequate supply of quality teachers for our schools? The importance of this question clearly remains, regardless of the health of the nation's economy.

This report offers insight into how schools can find quality teachers to staff their classrooms by examining how districts responded to the teacher shortage over the period 1999 to 2002.

AT THE PEAK OF THE REPORTING ON THE SHORTAGE, THERE WAS SURPRISINGLY LITTLE SYSTEMATIC INFORMATION ABOUT THE PROBLEM'S IMPACT.

It presents the results of an eighteen-month study that analyzed data at three different levels: a nationally representative database; a survey of 110 human resource directors across the country; and in-depth interviews with district and school administrators in seven regions. The report disaggregates the national numbers associated with the problem as well as examines how districts in different parts of the country perceived its impact. It also identifies the range of different policies districts used to respond to the problem. Finally, the study attempts to determine the factors that constrained or facilitated district efforts to more effectively meet the demand for teachers. These analyses of the 1999–2002 shortage crisis suggest a two-fold challenge for policy makers working on teacher recruitment:

— First, because of the uneven impact of the shortage problem, governments need to approach teacher recruitment strategically, identifying the particular policies that best match the problems their schools or districts are facing.

— Second, choosing the right mix of policies is only part of the challenge. It is equally important that districts and states identify and remove institutional barriers that thwart policy implementation and constrain innovation.

The remainder of this report is divided into six sections that explain and expand on the findings that lead up to these two points. Section Two examines prior work on teacher recruitment to provide some context for understanding the problem. The next three sections discuss the study's findings: Section Three presents an analysis of the U.S. Department of Education's 1999–2000 Schools and Staffing Survey in order to provide an initial picture of the shortage from a national perspective; Section Four describes the results of our survey of district human resource directors, highlighting the recruitment methods they use and their perceptions of these methods' effectiveness; Section Five describes findings from our interviews with district and school administrators. These interviews focused on how human resource directors and leaders in the private and religious sectors viewed the problem, how they approached it, and what constrained their ability to respond. The report presents recommendations based on the findings from all three levels of analysis in Section Six. It ends with a brief conclusion.

2: THE RESEARCH CONTEXT

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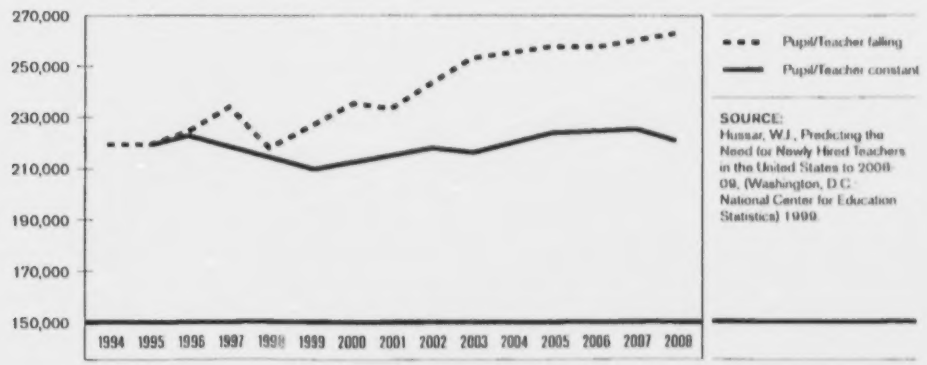
A first step in understanding any problem is to gauge its scale and scope. There are, unfortunately, few systematic estimates of the size or distribution of the teacher shortage. Newspaper accounts at the turn of the millennium tended to cite aggregate figures that signaled a national crisis. Among the figures most commonly mentioned was the U.S. Department of Education's (ED) estimate that the nation's schools would need to hire 2.4 million new teachers over the 11 years ending in 2008 (Hussar, 1999). This estimate was based on student enrollment and teacher turnover projections and assumed a constant pupil/teacher ratio. If one factors in the trend toward smaller class sizes, the ED projection jumps to 2.7 million. This translates into having to hire between 210,000 and 260,000 new teachers each year for several years into the future (see **Figure 1**). According to ED, about one-third of these new hires will be for positions in the nation's urban school districts (Yasin, 1999). Other researchers have offered similar visions of the future from the state perspective. The Illinois State Board of Education, for example, estimated that the state would need 60,000 new teachers in the next three years ("Teacher Shortage Looms, Study Warns," 2000). Californians were told their schools would need as many as 300,000 new teachers over the next ten years (Perry, 2001).

Looked at this way, the absolute numbers are daunting. They conjure up dramatic images. Indeed, assuming that there are approximately 3 million public school teaching positions in the nation, these figures can make it appears as if as many as 7 percent of the nation's teaching jobs

FIGURE 2
THE DEMAND FOR NEWLY HIRED TEACHERS IN THE U.S. ANNUAL ESTIMATES FOR DIFFERENT PUPIL/TEACHER RATIOS


270,000
250,000
230,000
210,000
190,000
170,000
150,000
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008
Pupil/Teacher falling
Pupil/Teacher constant
SOURCE:
Hussar, W.J., Predicting the Need for Newly Hired Teachers in the United States to 2008-09. (Washington, D.C.: National Center for Education Statistics) 1999.

could go unfilled in a given year (210 thousand/ 3 million). Based on these calculations, a child attending public school would have a 1 in 14 chance of not having a permanent teacher in his or her classroom on the first day of school. These are unsettling odds for any parent.

Yet such odds and the numbers beneath them are not very helpful when it comes to understanding the dimensions of a teacher shortage. For starters, they side step vital questions about the supply of potential teachers by equating demand with unmet demand. After all, the character of any shortage depends on how many of the 210,000 positions districts are unable to fill. Moreover, speaking as if everyone has the same odds in a shortage belies the common sense notion that some parents have more to worry about than others. According to conventional wisdom, for example, parents who live in the South and West, where enrollments are booming, have more to worry about than, say, those who live in the Midwest. Parents who are particularly interested in their child's math and science teachers or those whose child needs special education services also have more cause for concern.[1] Such caveats rightly reign in some of the more sweeping descriptions of what the shortage might entail. But, anecdotal qualifications do little to systematically set the boundaries of the problem. Unfortunately, there is not much research that does so either.[2] As the next few sections explain, researchers instead have largely focused on identifying factors that drive the demand for teachers and/or on challenging the way we think about exactly what is in short supply.

The Causes of Teacher Shortages

Although national shortage estimates are hard to find, there have been many attempts to explain why demand appears to be increasing. At the top of the list is teacher turnover. Noting that the average age of teachers has increased steadily over the past 10 years, some observers see demand as being driven by the inevitable turnover that will come with the aging of the teaching force (Hussar, 1999). From this perspective, a perennial wave of retirees will lead to increased demand for teachers in the future. Others look to pre-retirement attrition among teachers as the main driver of turnover. According to U.S. Education Department statistics, as many as 9 percent of new teachers quit during their first year of teaching and as many as one-fifth leave in the first three years (Yasin, 1999).

While it is easy to agree on why people retire as they age, there is less agreement over why people leave teaching before they retire. Ingersoll argues that organizational factors within a school – low salaries, lack of support from administrators, student discipline issues, and lack of input and decision-making power – are the reasons teachers leave (either their school, or the profession altogether) (Ingersoll, 1997). Harrington blames the specific demand for and shortage of math, science, and technology teachers on "a dysfunctional labor market held hostage by poor allocation of resources, disincentives to productivity and, ironically, inequity" (Harrington, 2001, p. 8). He argues that equal pay for all teachers – i.e., the single salary schedule—distorts the market for teachers in technical subject areas,

LOOKED AT THIS WAY, THE ABSOLUTE NUMBERS ARE DAUNTING. YET SUCH ODDS AND THE NUMBERS BENEATH THEM ARE NOT VERY HELPFUL WHEN IT COMES TO UNDERSTANDING THE DIMENSIONS OF A TEACHER SHORTAGE.

causing shortages. Wayne offers another explanation for pre-retirement attrition. He maintains that people are more apt to leave teaching for family and personal reasons than because of job dissatisfaction (Wayne, 2000).

In addition to turnover, two other major factors are seen as driving teacher demand. In some regions of the country, districts clearly need to hire more teachers simply to keep up with growing enrollments. More kids mean more teachers. From a national perspective, however, enrollment growth does not appear to be the greatest driver of demand. The nation's public elementary and secondary school enrollment, for example, is predicted to increase by only one percent between 1999–2000 and 2010–11. By contrast, it increased seventeen percent between 1988–89 and 1999–2000. (Hussar, 2002). A second factor driving demand is class size reduction policy. Like enrollment growth, this phenomenon is concentrated in particular states. It is no surprise that mandates for smaller classes require more teachers. Indeed, from a national perspective, class-size reduction policies may do more to drive the demand for teachers than population growth.[3]

Quantity vs. Quality

Despite all of the discussion surrounding the reasons why districts need to hire so many teachers, many researchers argue that quality, not quantity, should be the central focus of any teacher supply discussion. Focusing on quality, in turn, involves a more complex look at supply and demand in the teacher labor market.[4]

Barker and Smith, for example, note that the percentage of teachers teaching out of field (i.e. those not holding a major or minor degree in the subject that they teach) is on the rise (Baker & Smith, 1997). This suggests a teacher quality shortage, rather than a teacher quantity shortage. Ingersoll echoes the sentiment, stating that while many schools report difficulty in finding quality teachers, few have trouble just filling positions (Ingersoll, 1997).

The argument for focusing on quality, however, assumes that there is widespread agreement on what constitutes a quality teacher (e.g., certification, major in subject area, etc.). Unfortunately, no such agreement currently exists.[5] This is not to say that quality should therefore be set aside. On the contrary, as these observers note, there is more to ensuring an adequate supply of teachers than simply putting warm bodies in front of the classroom. Nevertheless, framing the teacher supply issue only in terms of quality at the expense of quantity presents an incomplete picture.

Distributional Concerns

Finally, some researchers have suggested that simply focusing on the numbers of teachers supplied relative to the number needed overlooks important equity issues. Shields and colleagues, for example, found that the bulk of teacher shortages in California were concentrated in urban, low income, low performing, and minority schools. During the 2000–2001 school year, urban schools had on average 19% uncertified teachers, compared with 9% in suburban and rural schools (Shields et al, 2001). Carroll and his colleagues reached similar conclusions. They noted that when teachers moved from one district to another, or from school to school within

RELATIVELY LITTLE RESEARCH HAS PROVIDED A SYSTEMATIC LOOK AT THE TEACHER SHORTAGE AND THE WAY DISTRICTS HAVE COPED WITH IT.

a district, they were likely to move to schools that served fewer minority students and fewer students eligible for free and reduced lunch programs (Carroll, Reichardt, Guarino, & Mejia, 2000). Combined, the two studies suggest that more and better qualified teachers tend to avoid poor urban schools. And, even if they are more experienced, qualified teachers who begin teaching at an inner-city school district are likely to move elsewhere.

As the above background suggests, despite the presence of research that sheds some light on individual elements of the problem, relatively little research has attempted to pull several pieces together and provide a more systematic look at the teacher shortage and the way districts have coped with it. This gap leaves the policy agenda vulnerable to impressionistic, partial, or exaggerated portrayals of the problem that have the potential to drive well-intentioned decisions that nevertheless miss the mark.

Research Questions and the Purpose of This Study

To begin to provide a clearer picture of the problem and possible responses to it, this project set out to explore the issue through three questions:

— What was the scope and scale of the teacher shortage?

— How did districts cope?

— What factors constrained their ability to respond? And, specifically, to what degree did certification requirements impede hiring?

To answer these questions, the study pursued three levels of data collection and analysis. First, we looked at national data on shortages and recruitment strategies from the 1999–2000 Schools and Staffing Survey (SASS). Second, we sent a mail survey to 110 human resource directors in public school districts in ten regions across the country. Finally, we conducted a series of interviews with district human resource directors and principals in seven districts. While in the field we also interviewed private, charter, and parochial school leaders in those same seven areas. The findings from these three levels of investigation are discussed in the following sections.

Finally, we admit up front that, for some readers, the findings and recommendations presented here may step too lightly around questions of teacher quality. Given this project's scope and data, however, this limitation is by design. We think the story that emerges from our findings – a story of numbers, and ultimately of public management – is an important addition to the debate over how to ensure that all students have competent teachers in their schools.

FOOTNOTES

[1]See, for example, Yasin, 1999. Also, Bradley, A. (1999, March 10). "States' Uneven Teacher Supply Complicates Staffing of Schools," Education Week and, Hare D., Nathan J., Darland J, and Laine S. W. M. (2000). Teacher shortages in the Midwest: Current trends and future issues. Oak Brook, Illinois: North Central Regional Education Laboratory.

[2]There are, however, a small number of state analyses that have attempted to provide both sides of the supply/demand equation. Estimates from the Florida Education Department, for example, suggested that the state would need about 12,000 more teachers per year than were projected to be supplied in the upcoming school year. In North Carolina, state education researchers calculated a shortage of more modest proportions, estimating that current demand will outstrip supply by about 2,000 teachers over the next decade–a figure less than two percent of the state's elementary and secondary teacher population. See Office of Strategy Planning (2000) Projected Number of Teachers Needed Through 2020–2021, (Tallahassee: Florida Department of Education, December) and Department of Human Resources North Carolina State Department of Public Instruction (1998) Teacher Supply and Demand Study (Raleigh, N.C.: North Carolina State Department of Public Instruction).

[3]See, for example, Harrington 2001, Hussar 1999, and Shields P.M., Humphrey D. C., Wechsler M. E., Riehl, L. M., Tiffany-Morales, J., Woodworth, K., Young, V. M., Price, T. (2001), The status of the teaching profession 2001. Santa Cruz, CA: The Center for the Future of Teaching and Learning.

[4]See, for example, Broughman, S.P. and Rollefson, M.R. (2000). Teacher supply in the United States: Sources of newly hired teachers in public and private schools: 1987–88 to 1993-94. (NCES 2000–309). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

[5]See Darling-Hammond, L. (2001). The research and rhetoric on teacher certification: A response to "Teacher Certification Reconsidered" National Commission on Teaching and America's Future, and Walsh, K. (2001). Teacher certification reconsidered: Stumbling for Quality. The Abell Foundation. Baltimore, MD for differing perspectives on this issue.

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3: A NATIONAL PERSPECTIVE ON THE SHORTAGE

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This section examines the teacher shortage problem through analysis of a nationally representative data set. In part, our goal here is to set the stage for the findings from the rest of our study. The national data also offer a good starting point because they provide some perspective on the impact of the problem, allow us to assess whether factors such as students' socio-economic status or an urban location are associated with teaching vacancies, and offer some estimates about the degree to which school districts have implemented various policies designed to attract potential teachers.

The Data

Over the last 15 years, the U.S. Education Department's National Center for Education Statistics (NCES) has used its Schools and Staffing Survey (SASS) to collect information on staffing and personnel issues in the nation's K–12 schools. NCES's most recent effort, the 1999–2000 SASS, involved a sample of public schools, district offices, teachers, principals, as well as public charter schools.[6] Private schools and Bureau of Indian Affairs schools also participated in the survey. NCES selected the respondents so as to provide a nationally representative database of public K–12 teachers, principals, schools, and school districts (U. S. Department of Education National Center for Education Statistics (NCES), 2000a). Collectively, the survey questions covered a wide range of issues, including: school and district capacity, descriptive demographics, teacher training and experience, salary structures, instructional practices, parent involvement, and the use of technology.

The 1999–2000 SASS cycle also included new questions designed to provide information about different aspects of teacher supply and demand. Though these items fall far short of providing estimates of the size of the shortage, the survey includes three areas of inquiry that can shed some light on these issues. Together they provide a useful backdrop for our work.

First, the SASS asked school districts about how many total teachers they employed and about the timing of their new hires. It is possible to use these questions to estimate the relative share of total teachers that were hired after the start of the school year. This late-fill rate provides one, albeit imperfect,[7] indicator of teacher shortages during the 1999–2000 school year across different districts. Second, items in the school questionnaire attempted to assess how hard it was for schools to hire teachers for particular subject areas. Together, these portions of the survey can provide a more systematic, if qualified, picture of the shortage compared to anecdotal accounts found in the media. Finally, a set of questions in the district questionnaire asked whether districts provided incentives (such as housing assistance or a cash bonus) to recruit teachers. Again, though limited, these questions provide a quali-

USING THE SASS DATA, AN ESTIMATED 45,000 WERE HIRED AFTER THE START OF THE 1999–2000 SCHOOL YEAR SUGGESTING THAT AT LEAST THESE MANY POSITIONS WERE UNFILLED IN PUBLIC SCHOOLS WHEN SCHOOL BEGAN.

fied indication of how districts responded to the tight teacher labor market.

The Uneven Impact of the Shortage

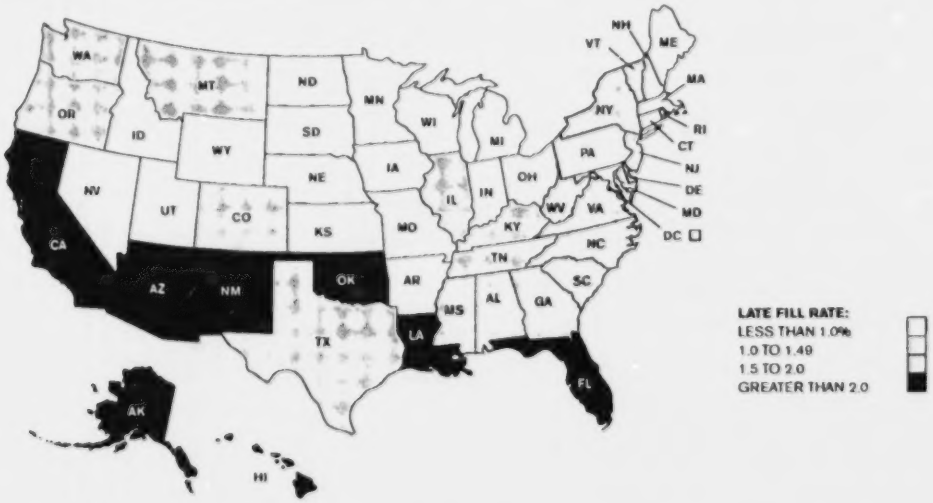
Using the SASS data, an estimated 45,000[8] were hired after the start of the 1999–2000 school year suggesting that at least these many positions were unfilled in public schools when school began.[9] This figure represents 1.5 percent of the total teaching positions in public schools (based on a national estimate of 3 million). Because the SASS tells us only about teaching positions that were eventually filled, this does not capture the number of positions that were never filled. As such, the 45,000 number understates the total number of vacancies. Indeed, given the limitations of the SASS data it is impossible to estimate an absolute vacancy rate for districts.

Nevertheless, if we assume that a district's late-fill rate generally reflects the overall vacancy rates in its schools, we can use late-fill rates to examine relative variations in the shortage problem across districts. With this in mind, a further look at the data show that the impact of the problem is not distributed evenly.[10]

Regional Distribution

When we look at the data, the conventional wisdom about some parts of the country having to worry more about teacher shortages than other parts seems to hold. Using late-fill estimates calculated from the SASS data, we were able to create state level estimates. Figure 2 illustrates how those rates vary across the country.[11] Five states significantly exceed the national average (1.5 percent): Hawaii (5.9 percent) and Alaska (5.6) lead the list, followed by New Mexico (2.6), Arizona (2.4), and California (2.3). The map also shows that, in general, states in parts of the Southeast, Southwest, and West have the highest rates.

FIGURE 2
ESTIMATED LATE FILL RATES, 1999–00



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Midwestern states, by contrast, appear to have less difficulty in hiring teachers. Most of these states, covering a band from Pennsylvania in the east to Idaho in the west, had a late-fill rate of less than 1.0 percent. Iowa represents the limit case, with an estimated late-fill rate of 0.4 percent at the start of the year. In states where the schools are hiring less than one percent of their teachers after the start of the school year, it would seem reasonable to suggest that they are filling their vacancies more easily.

Subject Field Variation

A look at the available data shows that the conventional wisdom about subject area shortages is also on target. Although the SASS data does not lend itself to a vacancy rate or even a late-fill rate analysis by subject area, the school questionnaire did differentiate when it asked schools how difficult it was to fill particular positions. Because the survey response options were qualitative (Respondents could choose from options like "easy... somewhat difficult... difficult...") the results, especially those involving comparisons, should be interpreted with caution.[12] Nevertheless, it is possible to pull out which subject areas schools generally perceived to be the hardest to fill.

Table 1 presents calculated national estimates of the average difficulty score schools reported for different subject areas. Special education, foreign language, and English as a second language top the list. Positions in math and the physical sciences were also difficult to fill (Interestingly, schools reported that vocational education instructors were just as hard to find as special education teachers). At the other end of the spectrum, public schools found it relatively easy to find English, social studies, and elementary school teachers.

TABLE 1
DIFFICULTY IN HIRING OF DIFFERENT SUBJECTS AS REPORTED BY SCHOOLS*

SUBJECT	AVG. DIFFICULTY SCORE
FOREIGN LANGUAGE	2.28
SPECIAL EDUCATION	2.19
VOCATIONAL EDUCATION	2.19
ESL	2.11
MATH	2.10
PHYSICAL SCIENCES	2.03
COMPUTER SCIENCE	1.99
BIOLOGY	1.95
MUSIC/ART	1.90
ENGLISH	1.55
GENERAL ELEMENTARY	1.39
SOCIAL STUDIES	1.36

*Where 1=easy, 2=somewhat difficult, 3=very difficult, 4=position never filled.

Socio-economic Status and Urban Location

Research suggests that in addition to the variation by region and subject, other factors appear to have an effect on how difficult it is for a school or district to fill a teaching position (Carroll et al, 2000). Using the same definition of late-filled teaching positions used for the geographic analysis, Table 2 offers estimates of this rate for districts in urban, suburban, and rural areas, those with a high percentage of minority students, and those with a high percentage of students eligible for free/reduced lunch programs. The data suggest that the challenge of hiring teachers becomes less difficult as one moves away from the central city. The late-fill rate for urban school districts was more than 50 percent higher than that for suburban school districts and twice as high as the figure for rural schools. Another way of looking at the disproportionate impact of the teacher shortage on central city schools is to note that though urban districts account for 29 percent of the teaching positions in the country, they represented 41 percent of the late-fill positions for the 1999–00 school year.

THE DATA SUGGEST THAT THE CHALLENGE OF HIRING TEACHERS BECOMES LESS DIFFICULT AS ONE MOVES AWAY FROM THE CENTRAL CITY. THOUGH URBAN DISTRICTS ACCOUNT FOR 29 PERCENT OF THE TEACHING POSITIONS IN THE COUNTRY, THEY REPRESENTED 41 PERCENT OF THE LATE-FILL POSITIONS FOR THE 1999–00 SCHOOL YEAR.

Given these figures for urban schools, it comes as little surprise that the shortage has a more profound impact on schools with relatively high minority student populations and larger shares of students eligible for free and reduced lunch. Table 2 separates districts into two categories, those whose student population is comprised of more than 40 percent minority students and those where minority students account for 40 percent or less of the population. School districts with high minority populations appeared to have a much more difficult time filling their teaching positions in 1999–00. They accounted for less than half (42 percent) of the total teaching positions, but they represented over 57 percent of the total number of late-fill positions. That figure translates into a 2.11 percent late-fill rate.

The findings regarding the minority student population are very similar to those that emerge when one examines the impact of the shortage relative to the socio-economic status of the student population. Using the percentage of students eligible for free/reduced lunch as a proxy, districts with relatively high levels of student free/reduced lunch eligible filled a larger share (1.88 percent) of their teaching positions after the start of the year compared to those with fewer low-income students (1.13 percent).

In sum, rather than a monolithic crisis, the SASS data show the teacher shortage to be a regional, subject specific phenomenon. Districts in the Southeast, Southwest, and West had more late-hires than those in the Midwest and Northeast. Foreign language and special education teachers were among the hardest to find; so were vocational, math, and science teachers. Schools in urban districts serving poor and minority students were hiring a larger share of their teachers after the start of the school year compared to those districts in more privileged areas.

TABLE 2
LATE-FILL RATE BY SHARE OF MINORITY STUDENTS, FREE/REDUCED LUNCH ELIGIBLE AND LOCATION SASS 1999–00

		TOTAL POSITIONS	UNFILLED POSITIONS	LATE-FILL RATE (%)
DISTRICT LOCATION	CENTRAL CITY	893,067	18,602	2.08
	SUBURBAN	1,508,341	20,322	1.35
	RURAL	671,321	6,163	0.92
% MINORITY STUDENTS	40% OR LESS	1,865,090	19,580	1.05
	GREATER THAN 40%	1,207,639	25,508	2.11
STUDENTS ELIGIBLE FOR FREE/REDUCED LUNCH	40% OR LESS	1,693,096	19,211	1.13
	GREATER THAN 40%	1,379,633	25,877	1.88
	U.S. TOTAL	**3,072,729**	**45,088**	**1.47**

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These findings are not intended to suggest that certain districts did not have to worry about recruiting and hiring enough teachers for their classrooms, or to say that they did not face difficulty finding the teachers they needed. What does emerge is a more refined picture of the shortage problem that challenges the notion of a monolithic national crisis. These data suggest that the impact of the shortage hit some districts particularly hard, and that this impact was far from random.

Policy Responses

The 1999–2000 SASS also collected information about the way school districts responded to the teacher shortage. This information is particularly relevant to our study's goal of describing how districts coped with shortages and exploring what they might have done differently. Unfortunately, the SASS asked districts about relatively few policy responses. As such, it provides information on only a small cross-section of policy options. Yet even with this limitation, a few points stand out.

Use of Cash Incentives

Approximately one in ten districts reported using cash incentives to help recruit or retain teachers in shortage areas; such policies, while not insignificant, nevertheless do not appear very widespread. As one might expect, however, incentive policies were more common in districts that appeared to have a harder time hiring teachers. Over 12 percent of districts that had above average late-fill rates reported using cash incentives.

Analysis of the SASS data also revealed which subject areas districts targeted with cash incentives. More districts offered cash bonuses for special education, ESL, biology, math, and vocational education than they did for general elementary, English, and social studies. This distribution, mirrors the subjects that schools reported as being more and less difficult to fill (see Table 3).

TABLE 3
PERCENTAGES OF SCHOOL DISTRICTS OFFERING INCENTIVES TO RECRUIT/RETAIN TEACHERS, SASS 1999–2000

SUBJECT	PERCENTAGE OF DISTRICTS
SUBJECT FIELDS (ANY)	10.4
SPECIAL EDUCATION	5.7
MATH	3.8
PHYSICAL SCIENCES	3.6
BIOLOGY	3.5
VOCATIONAL EDUCATION	3.5
ESL	3.3
MUSIC/ART	2.5
FOREIGN LANGUAGE	2.4
COMPUTER SCIENCE	2.1
ENGLISH	1.0
GENERAL ELEMENTARY	0.7
SOCIAL STUDIES	0.7
HOUSING BENEFIT	**2.0**
LOCATION INCENTIVES	**3.6**

Other Incentives

Districts can use other incentives as well. The SASS asked, for example, whether or not districts provided any assistance or in-kind benefit to teachers in order to offset the cost of housing. In areas with high housing costs, such a benefit could prove to be a substantial incentive for prospective teachers. A housing benefit, however, did not emerge as a popular choice: only 2 percent of the districts (an estimated 286 districts) reported offering one.[13] Finally, the SASS data reported whether or not a district offered cash incentives for teaching at certain schools within the district. Such schools might be hard to staff for a variety

GIVEN THE UNEVENNESS OF THE PROBLEM'S IMPACT, IT APPEARS THAT THE COUNTY AS A WHOLE IS AN UNPRODUCTIVE UNIT OF ANALYSIS WHEN IT COMES TO UNDERSTANDING THE TEACHER SHORTAGE PROBLEM. A MORE LOCALIZED FOCUS, THEREFORE, IS IN ORDER.

of reasons (Teachers might consider them less desirable because of poor facilities, more challenging students, safety concern, etc.).[14] Less than 4 percent of all districts offered such intra-district incentives.

Despite an explicit effort in the SASS to include questions on teacher hiring, it is impossible to estimate the size of the shortage because of how those questions were worded or because other questions were not asked. As such, a residual finding from the SASS analysis is just how limited the data are in providing good information about the supply of, and demand for, teachers.

Given the unevenness of the problem's impact, it appears that the county as a whole is an unproductive unit of analysis when it comes to understanding the teacher shortage problem. A more localized focus, therefore, is in order. Accordingly, the next two sections examine problems and policies surrounding teacher shortages from a regional and district perspective.

FOOTNOTES

[8]Different types of respondents received different questionnaires.

[9]Given the wording and structure of the questions, it is not possible to determine precisely how many vacancies a district may have had at the start of the year. The District Questionnaire first asks how teachers were "newly hired" for the 1999–2000 school year. It then asks, of those new hires, how many were hired before the summer break, during the first half of the summer, etc. The final question in this series asks how many were hired after the beginning of the school year. It is this figure that serves as the numerator for the late-fill rate estimate. The reported total number of teachers in the district (head counts, NOT FTE) is the denominator. Not captured in these figures are those teaching positions that went unfilled during the school year. Therefore, the late-fill rate provides a relative measure of the depth of the shortage but it is likely to understate in absolute terms the total number of teachers that districts had hoped to hire.

[10]All estimates presented here were derived using the BRR weighting procedure utilized by the Wesvar 4.0 statistical analysis software as recommended by NCES. This method produced an estimate of 45,088 positions that were filled after the start of the school year, with a standard error of 529 and a coefficient of variation of 1.173 percent.

[11]Estimates are based on the public school district data set and do not include the responses from public charter schools.

[12]The question here is whether or not districts with high late-fill rates also had high vacancy rates reported by their schools, and vice-versa. In the school questionnaire, administrators were asked how difficult it was to fill vacancies across subject areas. Unfortunately, SASS did not ask how many positions schools were unable to fill, and therefore it is not possible to estimate the difference between the number of teachers being sought at the start of the school year and the total hired after the year began. Despite the limitations in the data, it is possible to test the relationship between district late-fill rates and the likelihood that schools reported unfilled positions. When the relationship was tested by regressing whether a school reported unfilled positions during the year (SASS School Respondents, question 36) against the district late-fill rate, a positive, significant correlation between the two variables was found.

[13]The calculated estimates can be found in the appendix of this report.

[14]The precise wording of the question was, "How difficult or easy was it to fill the vacancies for the school year in each of the following fields?" For different subject areas (e.g., General elementary, mathematics, special education, etc.), schools that had open positions could respond that it was "easy," "somewhat difficult" or "very difficult" to fill the position, or that the vacancy was never filled.

[15]Of this total, more than one-half (an estimated 156 districts) of those jurisdictions offering housing benefits could be found in the western states.

[16]The question asks, "Does this district currently use any pay incentives... to recruit or retain teachers to teach in less desirable location[s]?"

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4: SURVEY OF HUMAN RESOURCE DIRECTIONS

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Methods Perceived to be Effective 31
Methods Perceived to be Less Effective 32

In late March 2001, we sent a survey to 110 human resource directors in public school districts in ten regions across the country. The survey's purpose was to find out how districts were experiencing the teacher shortage and, more importantly, what they were doing to address it. We also wanted to know whether the human resource directors saw their efforts as effective or not.

This non-random sample of ten regions was selected because both media reports and other researchers identified them as being particularly hard hit by teacher shortages in 2000. Accordingly, while the respondents are not nationally representative in a statistical sense, they include districts that fairly portray the types of urban and suburban districts across the country that were experiencing teacher shortages. The ten regions included in the survey were anchored by the cities on the map in Figure 3.

Within these 10 regions, we sent surveys to districts in locations that ED labels as "Large Central City," "Urban Fringe of Large City," and "Mid-size City" in its Common Core of Data. Eighty-three of the districts responded, giving us a 75% response rate.

As a set the districts are, in some ways, similar to the national data from the previous year. Because all of the survey respondents were located in large or mid-size cities, however, they enrolled on average more students and employed

FIGURE 3
MAP OF SURVEY REGIONS

more teachers than the national average from the 1999–2000 SASS data. Compared to the national data set (Table 4), fewer districts in our survey reported starting the year with at least some vacancies, but the total number of vacant positions relative to their total teaching force was similar to the late-fill average (1.5) found in the national data (E.g. Of the survey respondents who started the year with vacancies, the average vacancy rate was 1.5 percent; the high was 3.73% and the low was .08%). As for teacher turnover, the respondents reported a teacher turnover rate for the 2000–2001 school year of 14 percent. This figure is similar to national averages in previous years (e.g. 15% in 1988–99; 13.2% in 1991–92; and 14.3% in 1994–95.)[15]

tions about these methods' effectiveness.

Recruitment Methods

The survey asked human resource directors to indicate the methods their districts used to try to increase their applicant pool. The respondents could choose from a list of eleven methods that ranged from waiving credential requirements to recruiting applicants from oversees. Table 5 (see following page) summarizes their answers, listing recruitment methods in the left hand column and the percentage of human resource directors who reported using each method on the right. As the table shows, human resource directors reported using a variety of recruitment

TABLE 4
CHARACTERISTICS OF RESPONDING DISTRICTS

	HR SURVEY (2000–01)	NATIONAL ESTIMATES SASS 1999–00
# TEACHERS EMPLOYED (AVG.)	1,506	213
# STUDENTS ENROLLED (AVG.)	43,481	3,272
% STARTING YEAR WITH AT LEAST ONE TEACHING VACANCY	23%	38%*
VACANCIES AS % OF TEACHING POSITIONS (AVG.)	1.5%	NA
2000–2001 TEACHER TURNOVER (AVG.)	14%	–

*Percentage of districts reporting at least one late-fill position.

As already mentioned, the 1999–2000 SASS questionnaires collected a limited amount of information about the policies districts used to recruit teachers. The national data show, for example, that cash incentives were not widespread (around 1 in 10 districts reported using them, with a slightly higher percentage in districts facing more severe shortages). Cash incentives, however, represent only one policy option for recruiting teachers. Our survey asked districts about a wider array of policies they might use to increase the number of applicants to their district. The next two sections cover what the human resource directors said about their district's recruitment methods and their perceptions about these methods' effectiveness.

methods. (The table does not show how effective the methods are or how much individual districts use them relative to other methods).

The table lists the methods from the most popular to the least popular. At the top of the list is "Recruiting applicants from other areas/ state." At 86%, it is clear that the vast majority of districts were casting a wider net when it comes to recruiting teachers. At the bottom of the list is "specialty firms for hiring teachers" at 14%. In addition to this rough ranking and the general variety evident in the table, a few other patterns are evident. The most popular methods seemed to target existing teachers; methods that expand

TABLE 5
METHODS USED TO RECRUIT TEACHERS

RECRUITMENT METHOD	% THAT REPORTED USING IT N=83
RECRUITING APPLICANTS FROM OTHER AREAS/STATES	86%
HIGHER OVERALL TEACHER SALARIES	80%
ALTERNATIVE CREDENTIALING	68%
TEACHER TRAINING ACADEMIES	56%
RECRUITING APPLICANTS FROM NON-TEACHING PROFESSIONS	52%
WAIVING CREDENTIALING REQUIREMENTS	49%
RECRUITING APPLICANTS FROM OTHER COUNTRIES	43%
LOAN FORGIVENESS OR TUITION REIMBURSEMENT	33%

the pipeline into teaching were less widespread; and targeted economic incentives appeared to be the least common method.

Targeting Existing Teachers

The most popular recruitment methods were those that targeted people who were already committed to teaching, including both experienced teachers and newly-minted teachers. Over three-quarters of the human resource directors surveyed said that they recruited candidates from areas or states outside of their own. Looking for teachers abroad represented a less common way for districts to target people already committed to teaching. Almost as popular as recruiting from other areas/states was offering increases in overall teacher salaries. Eight out of ten of the human resource directors surveyed said that their district had increased salaries across the board in an effort to attract teachers.

Expanding the Pipeline

Programs designed to recruit non-traditional candidates also proved popular. Almost seven out of ten districts said they used alternative credentialing programs. These state-based programs generally offer people with a college degree the chance to become teachers without having to return to college as an education major. Half said that they actively recruited non-teaching professionals. The fabled example is the Boeing engineer who leaves the private sector to become a high school physics or math teacher. A significant share of the districts—almost half—said they waived certain credentialing requirements or provided emergency certification. With any of these policies, districts focused some recruitment energy on individuals who had not yet committed to teaching as a profession, hoping to draw a new group of motivated teachers into the classroom.

Over half of the respondents also said that their districts used "teacher training academies." These programs—also known as "grow your own" programs—target current district employees (such as paraprofessionals and teacher's aides), college students who may be interested in teaching, and other career-changers. Generally, such programs offer varying amounts of support to become a certified teacher, ranging from simple referrals and tuition assistance, to full-fledged, district-based certification programs.

Targeted Economic Incentives

Targeted economic incentives were far less popular. These policies provide extra money or

TARGETED ECONOMIC INCENTIVES WERE FAR LESS POPULAR. THESE POLICIES PROVIDE EXTRA MONEY OR IN-KIND ASSISTANCE TO INCREASE THE COMPENSATION FOR PARTICULAR TEACHERS OR POSITIONS.

in-kind assistance to increase the compensation for particular teachers or positions. They include benefits such as forgiving student loans or providing tuition reimbursement for people who have completed a traditional certification program. About one-third of the human resource directors surveyed reported providing such assistance. In addition, about three out of ten said that their districts provided cash bonuses for new hires. Less than 20 percent reported providing housing or mortgage assistance for teachers. Together, such relatively targeted incentives were far less popular than across-the-board increases in salaries for all teachers. Finally, at the bottom of the list of recruitment methods, only 14 percent of the human resource directors reported that they used professional headhunters to find teachers.

Perceptions of Program Effectiveness

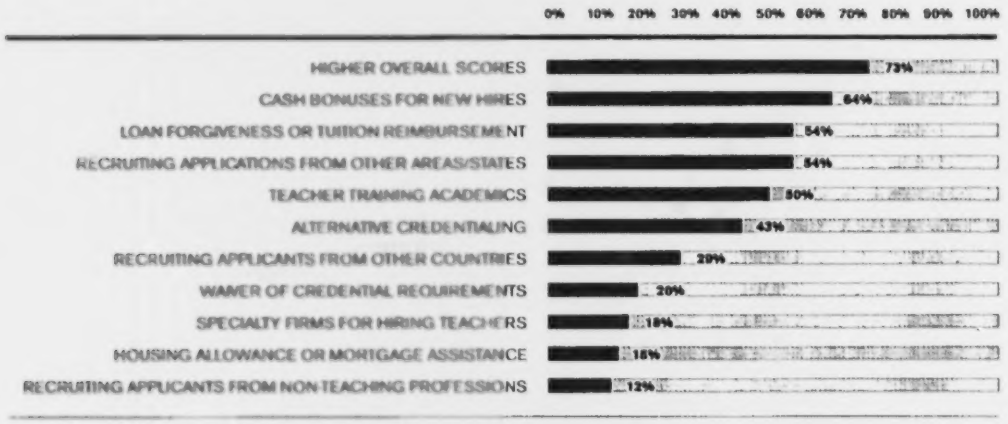
Both our survey and the SASS data show that districts responded to the labor market with a variety of intriguing policies. Because these policy responses are relatively new, there is little systematic evidence to suggest whether or not they are effective in attracting teachers. Rather than provide any information about the individual merits of any given approach, then, our survey instead reports respondents' impressions about how effective the various methods were.

Figure 3 summarizes the human resource directors' opinions about each method's effectiveness. The results represent the opinions of districts that reported using each particular strategy; respondents were asked to provide an assessment of method effectiveness relative to a five-point scale (e.g. 1 = little impact…5 = very effective). Figure 3 presents data on the share of directors who used and gave each method a score of "4" or better. It is important to note that the administrators responding to the survey likely applied varying interpretations of effectiveness when offering their assessments. For example, one administrator may have found a particular program effective in increasing the raw number of individuals applying for jobs in the district, and therefore score the program high. Another may have only identified a method as effective if they perceived that it produced quality applicants who they felt would become successful teachers. With those qualifications noted, the directors nevertheless did appear to hold clear opinions about which programs had an impact on recruitment and which ones did not.

Methods Perceived to be Effective

As the figure shows, the respondents said that offering more money to teachers was an effective way to attract more people to the profession. Seven out of ten felt that increasing teacher salaries was effective; six out of ten perceived cash bonuses to have an impact; and, about one-half said that they thought loan forgiveness worked. It is interesting to note, however, that they thought another economic incentive—housing assistance—had considerably less impact. Only 15 percent of administrators in districts with housing programs suggested that the benefit was an effective inducement for teachers.

FIGURE 3
WHAT HUMAN RESOURCE DIRECTORS THINK IS EFFECTIVE FOR RECRUITING TEACHERS.


0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
HIGHER OVERALL SCORES 73%
CASH BONUSES FOR NEW HIRES 64%
LOAN FORGIVENESS OR TUITION REIMBURSEMENT 54%
RECRUITING APPLICATIONS FROM OTHER AREAS/STATES 54%
TEACHER TRAINING ACADEMICS 50%
ALTERNATIVE CREDENTIALING 43%
RECRUITING APPLICANTS FROM OTHER COUNTRIES 29%
WAIVER OF CREDENTIAL REQUIREMENTS 20%
SPECIALTY FIRMS FOR HIRING TEACHERS 18%
HOUSING ALLOWANCE OR MORTGAGE ASSISTANCE 16%
RECRUITING APPLICANTS FROM NON-TEACHING PROFESSIONS 12%

Methods Perceived to be Less Effective

When compared to these various financial incentives, the human resource directors appear less enthusiastic about methods that target non-traditional candidates. While a respectable 50 percent of those who had training academy programs thought of them as effective, the perception of alternative credentialing programs was less enthusiastic (43 percent). Only one in five who reported waiving credentialing requirements thought it was effective. And, when it comes to the respondents' assessment of recruiting teachers from other professions, the numbers drop dramatically. Though a little over 50 percent said they recruited people from non-teaching professions, only around one in ten of them thought that this was effective way to recruit teachers – the lowest ranking among all of the methods.[16]

The survey did not involve a statistically representative sample, nor does it report anything beyond administrators' perceptions of program effectiveness. Despite these limitations, it begins to provide a more detailed if still impressionistic picture of how districts responded to the challenge of recruiting teachers in an era of shortage. It illustrates the variety of methods districts experimented with to recruit more teachers, ranging well beyond the cash incentives (either hiring bonuses or incentives tied to particular schools) or housing assistance covered in the SASS data. When asked for their perceptions about how effective various policies were when it came to recruiting teachers, the respondents showed a definite preference for economic incentives and less enthusiasm about expanding the teaching pipeline to include non-traditional candidates.

Though untested, these responses, when added to the perspective on the shortage offered by the SASS data, offer us another descriptive dimension of the shortage and the policies that districts used to cope with it. When taken together, the survey and SASS data suggest that districts generally favored broad policies such as district-wide teacher salary increases that, given the uneven impact of the problem, may have done little to meet the goal of placing a quality teacher in every classroom. More targeted recruitment policies, while not absent, were far from widespread.

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FOOTNOTES

[13]See Ingersoll, R. (2001) Teacher Turnover, Teacher Shortages, and the Organization of Schools. Seattle: Center for the Study of Teaching and Policy; University of Washington, p.16.

[14]The reason for this dim view of non-teaching professionals is unclear. Perhaps they were poor performers; perhaps they require more work of district and school officials; perhaps parents reacted negatively and pressured district officials; perhaps there just were not many such candidates out there.

WHEN COMPARED TO THESE VARIOUS FINANCIAL INCENTIVES, THE HUMAN RESOURCE DIRECTORS APPEAR LESS ENTHUSIASTIC ABOUT METHODS THAT TARGET NON-TRADITIONAL CANDIDATES.

5: THE FRONTLINES: TALKING TO SCHOOL ADMINISTRATION

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The findings from the SASS and human resource director surveys provide a general description of the nature of the problem as well as the methods some districts are employing to address it. Yet they also overlook major elements surrounding the issue that might have a significant impact on both the problem and the policy alternatives. These issues include: local variations in the nature of the problem, barriers to implementing particular policies, and more specific opinions about the efficacy of particular programs. In an effort to address some of these shortcomings, the project looked at 7 regions in the country to gather qualitative data on how districts were coping with teacher recruitment and retention challenges. The goal of this part of the project was to describe the nature of the shortage problem in regional labor markets, identify programs that school officials felt were effective for their particular area, and to categorize the barriers to implementing those programs. This section discusses findings that emerged from our site visits.

The Seven Regions

The regional interviews focused on 7 areas: Atlanta, Dallas, Orlando, Philadelphia, Phoenix, San Jose, and San Diego/Long Beach. In each of these regions, we selected one district for more intensive study. District selection was based on a review of the human resource director survey responses (We chose districts that indicated on the survey that they faced a significant recruiting challenge and/or were in the process of pursing policies to improve recruitment).

We sought to interview a comparable set of respondents in each district. Accordingly, in each district we interviewed human resource directors as well as school principals. We asked the respondents about district policies and experiences recruiting teachers, as well as their opinions about the effectiveness of these policies. The principal interviews were included to provide an alternative to the central office perspective on the process. In addition to public school district personnel, the respondents in each city also included school officials from charter, private, and parochial schools. In all, we spoke with 51 school officials using a semi-structured interview guide. All but three of the interviews took place face-to-face.[17]

We included the charter and private school administrators to serve as a quasi-control on the district. Based on the SASS data and other information, we hypothesized that the market for K–12 teachers was essentially a regional one and that within that market, all of the K–12 schools compete against one another for the same pool of potential teachers. In some cases, however, charter and private schools may be less constrained by bureaucratic and legal requirements when it comes to hiring. By including them in the case studies, we hoped to identify areas

where the easing of these restrictions might improve district efforts to hire more teachers.

Problems Vary Across Regions

As already noted, the school officials we interviewed were not a scientific sampling of administrators. Nevertheless, in an effort to facilitate non-scientific comparisons, the interviews were structured and respondents selected in a consistent manner. With all the appropriate caveats in mind, some relatively clear patterns emerged regarding how these officials perceived the shortage issue in their area.

One of the most striking features of the problem is just how much its description varies as one travels across the country. It was not so much the case that one region suffered from a particular type of problem while another faced an entirely different challenge. Instead, school officials in different regions faced different combinations of problems with regard to hiring teachers. Table 6 identifies the five different issues that, according to our respondents, affect the hiring of teachers: the uneven distribution of teachers across districts, subject area shortages, the high cost of housing, booming enrollments, and regional economic growth creating tight labor markets. An issue was marked for a region in the table if a majority of its respondents from all sectors (public, charter, parochial, and private independent) identified it as affecting their recruitment efforts. As varied as the challenges were across the districts/regions, the consistency of the responses within each region was impressive. In almost all of the cases, respondents within a region offered similar descriptions of the obstacles they faced regardless of whether they worked in a public district, charter school, or parochial/private school.[18] What emerged from the interviews was a relatively consistent description of a regional market for teachers. It is interesting to note how the results do not lend themselves to an easy categorization: e.g. big districts all face a similar problem. Instead, the particular combination that contributes to the shortage problem in any district is relatively unique to an area. The following sections describe the five problems in more detail.

TABLE 6
CASE STUDY RESPONDENTS' PERCEPTIONS OF THE CHALLENGES ASSOCIATED WITH THE TEACHER SHORTAGE PROBLEM

DISTRICT/REGION	INTER-DISTRICT DISTRIBUTION	SUBJECT-AREA SHORTAGES	COST OF HOUSING	ENROLLMENT BOOM	TIGHT LABOR MARKET
DEKALB/ATLANTA	■	■			■
GARLAND/DALLAS	■	■		■	■
SEMINOLE/ORLANDO	■	■		■	■
PHILADELPHIA	■	■			■
MESA/PHOENIX		■		■	■
SAN DIEGO/LONG BEACH		■			
SANTA CLARA/SAN JOSE	■	■	■		■

Inter-District Distribution

In Philadelphia, Atlanta, Orlando, Dallas, and San Jose, respondents said that the shortage problem was most pronounced in the central city school districts. In these areas, people thought that it was much more difficult to find teachers to work in inner-city classrooms than in other schools.

It was common for officials in charter and private schools in the Philadelphia area, for example, to declare that yes, there was a shortage of teachers. But when prompted, they acknowledged that their schools had managed to fill its teaching positions by the start of the year. The city's district, by contrast, found itself scrambling to recruit and hire teachers well after classes had begun. Respondents in all sectors said that working conditions and general school climate in Philadelphia's public schools was the reason for this uneven distribution. Respondents both in and out of the District noted that, when given a choice, new and/or continuing teachers gravitated to schools that faced fewer challenges in terms of class size, disruptive students, safety, facilities, etc (This was sometimes the case even when such schools offered a slightly lower salary). A district official also cited the district's overly bureaucratic hiring process as an impediment to recruiting teachers.

This is not to say that an uneven distribution between districts was confined to Philadelphia, Atlanta, Orlando, Dallas, and San Jose. In general, all of the areas visited described the way teachers gravitated toward more attractive working conditions. In San Diego and Mesa (AZ), the phenomenon was reported to be a question of intra-district distribution. San Diego officials described how the schools in the northern part of the district were considered more desirable places to teach when compared to schools in the south end. This meant that teacher openings in the northern, relatively suburban, settings filled quickly, often with teachers transferring from the south end. A school administrator in Mesa, Arizona described a similar situation. He noted that the district was diverse enough to offer a variety of teaching environments and student populations and that, when faced with a choice, teachers generally preferred positions in the more affluent areas.[19]

Subject-Area Shortages

Consistent with the SASS findings, anecdotal information from media reports, as well as other research,[20] the interviewees across all of the sites said it was hard to find teachers for specific subjects.

Nowhere was this more apparent than in the San Diego area. Despite being able to talk about national and statewide teachers shortages, administrators in the area said they were immune to the problem, with an important exception. The San Diego area respondents reported they had trouble finding teachers for particular subjects. One public school district administrator in southern California summed up the situation this way:

> *We're sort of blessed, really. We have good weather, a low cost of living—relative to parts of California. People want to live here. We offer competitive salaries and benefits—great benefits. It's not really a case of shortage here, at least not yet… we may actually have 150 too many teachers because we haven't hit our enrollment projections. Recruiting for some areas is still difficult. Special education, bilingual, math and science—they're the hardest.*

In almost every interview where it was applicable, the respondent identified math and

science as among the hardest subject areas to fill. The public school administrators also said special education instructors were hard to find. Though not mentioned as frequently, many of the respondents also noted that ESL, bilingual, and foreign language teachers were hard to find.

Charter, private, and parochial school respondents reported the same subject area shortages as the public school respondents. Even the most elite private schools, despite attractive work environments and competitive salaries, had difficulty. A headmaster at an elite K–12 school in Atlanta, for example, began by describing how at first he was surprised at how relatively easy it was to find math and science teachers. He went on to say that he soon discovered that keeping them beyond the first year or two was a serious challenge.

Just as they could identify subject area shortages, school administrators were quick to name areas of surplus. When asked if there was a shortage of teachers, for example, a district official in San Diego, responded,

> *Is there a shortage of teachers? No. There certainly isn't a shortage of white women who want to teach elementary school....*

This administrator went on to describe how, by contrast, math, science, and special education teachers were scarce (She also noted that the district had begun an outreach program to encourage males and minorities to become elementary school teachers). A public school district official in the Orlando area described the mismatch between subject area supply and demand this way:

> *I never recruit for P.E., social studies, and business. There is a surplus of those and they're easy to get. I even encourage my own social studies teachers to get certified in other areas so that they are more marketable in the future.*

In Florida, one administrator only half joked,

> *"We don't need many [teachers] with a high school social studies certificate... unless they can coach football."*

Housing Costs

While school officials in southern California were describing shortages in specific subject areas, their counterparts in the northern part of the state described something more. In the San Jose area, for example, school officials said that the driving factor behind their recruitment problem could be summarized with one word: housing. Every person interviewed (public, private, parochial) said the cost of living in the area was the main obstacle in their efforts to attract and retain teachers.

This is no surprise. The cost of housing in the region, fueled by the high-tech boom, has skyrocketed in recent years. The median price of a home in Santa Clara County was $554,550 in 2000, a 35 percent increase over the previous year and 70 percent higher than in 1998 (Krainer & Furlong, 2000). The result was that many teachers were priced out of the market, unable to afford a home in, or near, the district where they taught.

Moreover, it was not as though teachers in schools in the San Jose area were poorly compensated. On the whole, starting salaries in the area were relatively high, and many respondents reported recent increases. The suggested

starting salary for a new teacher in a San Jose Diocesan school, for example, was $33,900 – a higher figure than any of the Catholic schools we visited in the other 6 regions. Charter school teachers could expect about $40,000 in their first year; one of the elite private K–12 institutions was offering $48,000 to start. The Santa Clara school district offered teachers with one year of full-time experience and a BA a starting salary of $37,083 for the 2001–2002 school year (Santa Clara Unified School District, n.d.).

Despite the relatively high pay scales, teacher compensation was still falling short of the real estate market during the late 1990s. Booming housing costs severely diminished teachers' hopes of home ownership—even if a district was able to recruit and sign a teacher to fill a position, the cost of housing eventually took its toll.

Enrollment Boom

In several of the sites, respondents cited a growing student population as a significant variable in the teacher shortage equation. School officials in the Orlando, Phoenix, and Dallas areas, for example, pointed to a boom in enrollments as the reason behind a dramatic increase in the demand for teachers.

Their observations are consistent with more general data on demographic changes in the nation's student population. National statistics show that districts in the Sun Belt states have led the nation in primary and secondary enrollment growth over the past decade. From 1989 to 1999, for example, enrollments in Arizona and Florida jumped 40 and 33 percent respectively. At the time, this put them second and third in the nation for growth (behind only Nevada, which saw a 74 percent increase).[21] California and Georgia followed close behind, both growing about 26 percent. Texas ranked twelfth with a 20 percent increase.

This kind of growth strains already limited resources. While it clearly can mean hiring new teachers, it can also mean building new schools. A charter school administrator in Orlando noted that the Orange County School District had opened 6 new schools in the 2001–02 school year and still found itself 3,500 students beyond capacity. (The district enrolls more than 150,000 students.) The district opened two more new schools at the start of the 2002–03 school year. In addition to the tail end of the baby boom echo of the 1970s and 1980s, immigration and migration will be critical factors in future enrollment figures. NCES projects that the South and West will continue to lead the nation in immigrant growth for the next several years (U.S. Department of Education, National Center for Education Statistics, 2000b). If the number of students with limited English proficiency increases, even more ESL and bilingual teachers will be needed.

Tight Labor Market

The final factor affecting the teacher supply that respondents consistently mentioned was the performance of the overall regional economy. (Note: The interviews were conducted during the 2001–02 school year, when the U.S. economy had just begun to slow down after several years of sustained growth.) School officials across almost all of the regions attributed many of their recruiting difficulties to an economy that was experiencing sustained and significant growth. From their perspective this growth meant that individuals had more job opportunities, many of which appeared to be more lucrative than teaching.

If, as the respondents hypothesized, the tight labor market was making it more difficult to fill teaching positions, then the converse may also be true. In a slowing economy, one would expect it to be easier to find teachers. By happenstance,

the timing of the field interviews provided an opportunity to test this question, albeit unscientifically. As noted above, the case studies were conducted during the 2001–02 school year. We were, therefore, in the field on the heels of a precipitous cooling of the U.S. economy. After respondents were asked to identify the factors that they saw contributing to their difficulties in hiring teachers, they were prompted to compare the current school year (2001–02) to the prior one (2000–01). Of those who felt they could make such a comparison, most stated that the task of filling teaching positions had been harder in the prior year and singled out the economy as the cause.

An administrator in the Philadelphia Archdiocese, for example, recalled that in 2000–01 about 15 schools began the year with one or more positions unfilled. The following year, she had to endure the typical "late-August scramble" to fill positions, but her hiring was complete once school started. An administrator in Dallas's Archdiocese offered a similar assessment. With tongue in cheek, she observed that the prior year she was "so desperate for teachers that she would take anyone who wouldn't beat the children." The recruiting situation changed a year a later.

This year [2001–02] has been totally different. I don't have to look at that person who has lost 4 jobs in the last 5 years… For the first time, I have more math applicants than I know what to do with.

A southern California district human resource administrator noted how, even with their relative abundance of teaching candidates, the slowing economy had enabled the district to become more selective. "Now [2001–02], we focus on the 9's and 10's on our list. Last year, we sometimes had to reach down to 5's." The result, she concluded, was higher quality teachers for the district.

From the perspective of the officials interviewed for this project, it was clear that the nation's record-setting period of economic growth created a very tight labor market for teachers. These same market forces, however, appeared to work in the opposite direction as well; the pressure to recruit and retain teachers eased as the economy cooled.

Policies in Use

In response to the challenges presented by the teacher shortage, the officials we interviewed reported using a variety of policies and strategies. These policy responses, not surprisingly, mirror those identified in our survey of human resource directors. The opportunity to explore those responses in greater depth with people inside and outside of the system, however, revealed some interesting twists on some of the more predictable approaches.

Use of Cash Incentives

As noted above, a majority of our survey's human resource directors reported using various economic incentives to increase the attractive-

COMBINED, THE IMPACT OF PHILADELPHIA'S DIFFERENT BONUSES ON A TEACHER'S BASE SALARY COULD BE SUBSTANTIAL: A NEW MATH TEACHER, FOR EXAMPLE, WHO AGREES TO WORK IN A BONUS SCHOOL, COULD RECEIVE AN ADDITIONAL $13,000 OVER THREE YEARS.

ness of teaching as a profession. Signing bonuses for new teachers, in particular, emerged as a relatively popular tactic with almost one-third of the HR directors in our survey reporting that their districts used them. In the interviews, we found a similar rate of use, although school officials in private and charter schools were less likely to employ this strategy.

At the time of our visit, Philadelphia was working to take the idea of bonuses one step further.[22] In 2001, the district began to offer a $4,000 signing bonus (payable over three years) to new teachers. Bonuses were also available that targeted areas of particular need: the district offered $1,500 annual bonuses to people teaching in high-need subject areas (Special Education, Bilingual education, Math, Chemistry, Physics, and Spanish). Philadelphia used bonuses to try to mitigate distribution problems caused by intra-district teacher transfers as well. The district offered an additional $1,500 annually for teachers who worked in what the district called bonus schools (A school became a bonus schools according, in part, to indicators of high teacher turnover). Combined, the impact of Philadelphia's different bonuses on a teacher's base salary could be substantial: a new math teacher, for example, who agreed to work in a bonus school, could receive an additional $13,000 over three years.

Other Incentives

As already mentioned, some districts tried to reduce the net cost of housing as a recruitment inducement. Though less common (in the SASS, our survey, and interviews), housing assistance has the potential to play a role in areas where the cost of living is a critical concern.[23] Public districts in both Philadelphia and the Orlando area reported working informally with apartment owners to find discounted rental agreements for teachers. The most striking housing innovation was in the San Jose area. The Santa Clara County School District financed and built its own apartment complex for teachers. Offering the units at about one-half to one-third below market rates, the district had three applicants for each of the 40 new apartments. Participation was limited to new teachers, defined as those in their first 3 years with the district.

Recruitment and Hiring Methods

Schools not only experimented with what they offered new teachers in terms of financial incentives; they also took innovative approaches to the hiring process. For some, this meant expanding the geographic scope of their recruitment area. Administrators across all sectors—public, private, and charter—reported looking further a field for applicants. Schools that traditionally

THE DISTRICT DEPUTIZED PRINCIPALS TO TRAVEL AND RECRUIT PROSPECTIVE TEACHERS, ENABLING IT TO COVER MORE GROUND THAN IN PRIOR YEARS. SEMINOLE COUNTY, IN FACT, HAS TAKEN THE UNIQUE STEP OF AUTHORIZING SOME OF ITS PRINCIPALS TO FORMALLY COMMIT TO HIRE TEACHERS ON THE DISTRICT'S BEHALF. COUNTY ADMINISTRATORS OBSERVED THAT STREAMLINING THE DECISION TO OFFER A TEACHER A JOB ENABLED THEM TO MOVE QUICKLY WHEN THEY ENCOUNTERED PROMISING NEW TEACHERS.

recruited in their metropolitan region began searching for teachers throughout the state. Others looked beyond their state borders, reaching out to candidates in other states. Some even ventured overseas to recruit math, science, and language teachers. Each of these approaches echoed the findings from our survey.

The survey, however, could not highlight the costs of effectively expanding a district's recruitment area. For smaller institutions, the cost of sending recruiters on the road was prohibitive. Even larger districts found their human resource departments lacking the personnel to cover the various job fairs in their region as well as reaching out beyond their traditional recruiting area. The Seminole County School District, in the Orlando area, added to its recruiting muscle by drawing school principals into the process. The district deputized principals to travel and recruit prospective teachers, enabling it to cover more ground than in prior years. Seminole County, in fact, had taken the unique step of authorizing some of its principals to formally commit to hire teachers on the district's behalf. County administrators observed that streamlining the decision to offer a teacher a job enabled them to move quickly when they encountered promising new teachers. They felt this gave them an advantage over their competition, enabling them to lock in commitments with some of the better teaching prospects before their neighboring districts could act.

Lacking the depth of resources found in the public districts, private and charter schools still managed to expand their recruitment areas. The Internet emerged as an essential component in such efforts. Individual charter schools, for example, discovered they were conducting de facto national and international searches when they posted positions on the web. A number of respondents also reported utilizing web sites that served as clearinghouses for individuals looking for jobs and schools with open positions. While web postings and the use of Internet matchmakers had the potential to dramatically increase the number of applicants, respondents noted that the number of qualified applicants were often a smaller subset of that pool.

While looking further a field for new teachers offered them some hope of finding the teachers they needed, districts discovered they also could benefit by focusing their efforts closer to home. Several districts have implemented programs designed to assist existing staff members in becoming fully qualified teachers. Seminole county, for example, was helping some of its paraprofessionals enroll in nearby education programs. Districts in California could take advantage of state aid to help teachers working with temporary certifications obtain appropriate credentials. East Side Union School District (San Jose), with the help of state funds, has partnered with San Jose State University to help existing staff members complete their credentials. San Diego aggressively began a similar program a year earlier with the result that the district had only 9 teachers working with emergency credentials in 2002 (out of a total of 9,000 teachers), a number far below the state average. Finally, the Philadelphia School District, using funds from a federal early literacy program, hired over 1,000 literacy intern teachers since 1999. Under the motto "Teach while you learn. Learn while you teach," the program brings people who have their BA but no teaching certificate into kindergarten and first grade classrooms to assist teachers by offering one-on-one and small group instruction. It offers these interns referrals to local education programs, professional development stipends, as well as tuition assistance (6 units/year) as they work toward becoming credentialed teachers.

Retention Efforts

In the interviews, we also asked school ad-

ministrators why teachers left their district and whether there were any programs in place designed to improve teacher retention. The most common reasons school officials mentioned or the departure of teachers was a change in family situation, such as a spouse re-locating, the addition of a child to the family, or to care for an elderly parent. They also cited retirement as a major factor. Few of the public school administrators interviewed expressed the opinion that their teachers were leaving for jobs elsewhere (Comments about the effects of a competitive labor market generally applied only to prospective teaching candidates). Among the private institutions, however, administrators in the Catholic diocesan offices acknowledged that some of their teachers left for public schools.[24]

In contrast to the questions about policies designed to recruit more teachers, public school administrators had considerably less to say about retention programs. When talking about policy changes that plausibly could have an effect on both recruitment and retention—across the board salary increases, for example—they framed the choice largely in terms of recruitment. When interviewees did talk about retention policies, they did not mention adjusting them or adding to them in order to cope with the shortage problem. Although each teacher retained from one year to the next is one fewer teacher that a district has to recruit, the role of teacher retention did not appear to be a high priority compared to recruitment among the administrators we interviewed.

In sum, the administrators interviewed focused more on changes to recruitment efforts relative to new retention policies when they talked about coping with the teacher shortage. This is not surprising given these officials' impressions regarding the reasons why teachers leave their districts. There are few policy changes, for example, that a district could make to retain a teacher whose spouse is re-locating to another part of the country. Nevertheless, the pattern that emerged during the interviews was that improving teacher recruitment garnered a greater share of attention in district offices relative to teacher retention efforts.

Constraints on Innovation

The interviews revealed that districts faced several important constraints as they tried to address the shortage problem. These constraints fell into three broad categories: institutional capacity, organizational culture, and collective bargaining agreements. As the respondents noted, any one of these barriers could limited their district's flexibility, frustrating its efforts to cope with the problem.

Institutional Capacity

For our purposes, institutional capacity is defined as a district's ability to design and implement its chosen policies. This capacity includes processes and rules, resources, leadership, skills, and knowledge that transcend any one administrator's tenure, no matter how talented he or she may be. In most of the districts we visited, institutional capacity to deal with teacher recruitment and hiring was most apparent in terms of information technology. Districts with sophisticated information technology systems were able

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DISTRICTS WITH SOPHISTICATED INFORMATION TECHNOLOGY SYSTEMS WERE ABLE TO DESIGN AND IMPLEMENT NEW AND WIDE-REACHING APPROACHES TO RECRUITING AND HIRING TEACHERS. DISTRICTS WITH ANTIQUATED OR CUMBERSOME TECHNOLOGY STRUGGLED TO MONITOR THEIR WORK, LET ALONE RESPOND TO CHANGING MARKETS.

to design and implement new and wide-reaching approaches to recruiting and hiring teachers. Districts with antiquated or cumbersome technology struggled to monitor their work, let alone respond to changing markets.

DeKalb County, Georgia's internet-based Paperless Applicant Tracking System (PATS) represents the far end of the spectrum. The system is "open 24 hours a day" and acts as an information hub for three key groups of people: applicants, principals, and human resource department personnel. Potential candidates are able to fill out forms on-line for specific jobs or generic system-wide positions; they can also receive guidance about certification and other job requirements. Principals are able to use the system to post vacancies at their schools and to peruse candidates, all from desktop computers in their offices. When principals see an attractive candidate, they are responsible for contacting that person and setting up a job interview. Once they decide to hire, principals make a recommendation to the human resource department.[25] The human resource department uses PATS to monitor both the number and status of all of its teacher candidates. The system's graphic recruitment interface allows HR personnel to see how many people applied to teach a particular subject (e.g., high school Spanish), the status of their application and materials, and how the applicant originally found out about the district. A district administrator described the level of automation associated with such systems in a *School Administrator* article this way:

> *State-of-the-art software now enables your office to receive job applications via the internet, to immediately evaluate or filter the credentials of the applicant, send an immediate email response, route the applications to the personnel administrator with hiring authority, send out electronic evaluation forms to the references listed, order transcripts or college placement files electronically, order copies of teaching certificates from state certification offices and transfer all job applicant data to the applicants electronic master file located in the school systems mainframe computer. Each of these processes can occur within microseconds without human intervention. (Grant 2001).*

Thanks to PATS, what used to take weeks now takes days. Candidates apply faster and principals contact them more quickly. The district's human resource administrators said that the system has increased their applicant pool (e.g., they get "hits" from all over the world) and has helped them think strategically about what they are doing, and need to do, to attract the best candidates. The district also has plans to integrate their paperless application process with their existing personnel data system. Their goal is to create a seamless electronic means of handling all of their human resource needs from the point of application to the time a teacher files for retirement benefits.

Not all district are so fortunate. According

WITHOUT GOOD DATA AND THE ABILITY TO ANALYZE IT, HUMAN RESOURCE DEPARTMENTS HAVE A HARD TIME RESPONDING STRATEGICALLY TO TEACHER SHORTAGES AND TIGHT LABOR MARKETS.

to a district human resource administrator in Philadelphia, "When I first got here [1997], no one could tell me how many people were applying for the district in, say, November—they just didn't know." Of course, the department had been receiving teaching applications in November, but no one could tally or analyze how many they received. Four years later, the administrator said she knew how many people applied to the district each month, but she still could not to tell how many people applied for specific types of teaching positions. She did not know, for example, how many people applied to be a junior high school mathematics teacher or a high school Spanish teacher. The problem was that unless and until the district hired someone, applications were kept on paper records. Without electronic files, the district could not get a systematic understanding of its applicant (or information) flow.

Needless to say, the School District of Philadelphia is an extreme example. The majority of case study districts had electronic files on their candidates. But difficulties existed even in districts that were more technologically savvy than Philadelphia. One district's "automation" consisted of cumbersome software and incompatible systems, originally designed for mainframe computers. Others had PC-based databases at the district office, but required their principals to travel "downtown" in order to examine applicant files, adding precious time to the hiring process. And, in districts that seemed to have it all (i.e., on-line database access at their schools) things did not always work smoothly. Some struggled to get buy-in with human resource staff or principals who preferred a more traditional approach to hiring. Others had to deal with principals who were simply uncomfortable with, or untrained in, using the technology. Some districts that were new to the Internet found they had to sift through overwhelming numbers of contacts, many of them useless. Finally, one human resource director told us that her department could not access vital information kept in "data silos" elsewhere in the district.

Without good data and the ability to analyze it, human resource departments have a hard time responding strategically to teacher shortages and tight labor markets. Beyond basic information - e.g., vacancies in schools, applications on file and their status—districts need data about their own performance in order to be strategic. They may want to analyze the "yield" associated with their various recruiting methods; they may want to study the impact of new compensation polices (such as bonuses for working in low performing schools); or they may want data about the performance of new hires from different university training programs. Without the institutional capacity that technology (or other important processes) provides, districts struggle to respond to demands for change.

Organizational Culture

As important as technology is, a district's ability to gather and use information depends on more than just computers and software. The context in which those tools are used matters too. In our interviews we found that an HR department's organizational culture can constrain its ability to cope with new challenges and change. An organization's culture is difficult to define. Gen-

erally, it is *how things get done.*[26] The interviews with human resource directors revealed that the set of values and behaviors that permeated their department could make their job easier or more difficult.

To implement new procedures, for example, district administrators need their staff to buy in to new process and goals. But in the districts we visited, several human resource directors told us they struggled to get their staff to think differently about their work and that this struggle made it hard to be strategic about both recruiting teachers and serving schools.

Many of the HR directors, for example, mentioned the challenge of getting people to rethink the recruiting calendar. More than one said that their district needed to consider recruitment and hiring as a year-round job. But recruitment was generally seen as an activity that geared up in the spring and winded down in the early fall. As one HR director put it:

> *I know I'm going to have to hire 200 teachers this year. I just know it. But my staff doesn't want to do anything until we have those positions on paper and in the budget. But by that time, it'll be too late.*

Another agreed.

> *I really had a hard time getting my staff to look at it that way [as an ongoing activity]. They were used to sitting down in May and starting to make appointments.*

For both leaders, the way things got done in their departments was tied to a calendar and routine that were ill-suited to the demands of a competitive job market.

In addition to being tied to a certain calendar, human resource departments also have their own procedures and jurisdictions that can frustrate change. As one executive director told us, she had to battle a "cost center mentality" in her staff from day one. Rather than actively looking for candidates, her staffers were content with accepting and processing unsolicited applications. People did not understand why they should be interested in getting and analyzing statistics about applications and recruitment. The extent of their authority was to process applications as they arrived. This manager said that her number one job during her first years in the department was "turning around the culture in this office."

HR directors were not the only ones to complain. A principal in Philadelphia described how difficult it was for his district's HR office to let go of its commitment to procedure, however inefficient. As he told it, the office left a post vacant at his school for months as it searched for a candidate who met its hiring goals: an African-American male who could teach Mandarin Chinese. Elsewhere principals complained about the tone and culture in the district human resource office. A principal in Southern California, for example, said that his district's department

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needed better customer service skills.

> *They are too slow and can really confuse people who are applying. I've had people who I want to hire call me in a panic because someone downtown made it sound like they won't be hired.*

This is no small problem. As the DeKalb staff services director notes,

> *In many situations, the only contact a job applicant will make with the district is his or her connection with an individual in the personnel department. The recruitment of that applicant may hinge on how the individual is treated by the receptionist during a telephone call of less than a minute (Grant, 2001).*

When human resource directors or assistant superintendents (or superintendents for that matter) want to ramp up their district's recruitment efforts, they need the help of everyone in the human resources department. They also need widespread agreement on what the department does, and how it does it. The interviews suggest that if the prevailing work norms and culture are overly bureaucratic—that is, if they value process over product, are segmented ("It's not my job"), and avoid risk and change—attempts at innovation are hard pressed.

Collective Bargaining Agreements

Finally, in districts with strong teachers unions, collective bargaining agreements can constrain the way human resource departments operate and respond to change. In particular, contract-driven seniority-based teacher placements can slow down recruitment, hiring, and placement of teachers. As a result, the ability of districts to respond to a changing job market and act strategically can be inhibited.

Several of the interviews described the negative impact of internal "post and bid" procedures. In San Jose, a group of high school principals told us about the "horse trading" that occurs every spring as they and their colleagues have to deal with the obligatory transfer of current district teachers. As they put it, the superintendent "locks us in a room for three days and tells us we can't come out until we've got everyone in a school." Principals in Mesa also spoke of taking care of the "obligs" before being able to think about placing new hires. One former principal, now the head of a charter school, offered a blunt assessment of what she described as the "dance of the lemons" – the annual assignment of teachers no one wanted on their staff. It was clear to her that, without the protection afforded by the

WHEN TEACHERS ARE SHUFFLED ACCORDING TO A CALCULUS BASED ON SENIORITY AND EXPERIENCE, VETERAN TEACHERS CAN CLUSTER IN "BETTER" SCHOOLS AND NEW AND INEXPERIENCED TEACHERS END UP WITH THE TOUGHEST ASSIGNMENTS. IN THESE CASES, THE INTERVIEWEES THOUGHT THAT, AT BEST, THE TRANSFER PROCESS SLOWED DOWN DISTRICT EFFORTS TO HIRE AND PLACE TEACHERS, AND, AT WORST, RECYCLED INEFFECTIVE TEACHERS.

WITH VERY FEW EXCEPTIONS, THE RESPONDENTS WERE AGNOSTIC WITH REGARD TO THE CURRENT DEBATE SURROUNDING THE EFFECTIVENESS OF TEACHER CERTIFICATION AND ITS EFFECT ON RECRUITMENT AND HIRING.

collective bargaining agreement, these teachers would not have jobs. As a San Diego district administrator observed, "A lot of the movement of teachers in this district is beyond the control of principals or the central office." When teachers are shuffled according to a calculus based on seniority and experience, veteran teachers can cluster in "better" schools and new and inexperienced teachers end up with the toughest assignments. In these cases, the interviewees thought that, at best, the transfer process slowed down district efforts to hire and place teachers, and, at worst, recycled ineffective teachers.

Districts can even run in to problems when their collective bargaining agreement appears to support more flexible hiring practices. At the time of our visit, the School District of Philadelphia had recently negotiated a provision in its collective bargaining agreement that allows for more decentralized hiring and assignment of teachers. It gave principals more authority to choose who teaches at their schools. Prior to the agreement, the central office simply assigned teachers to schools according to their expressed preferences and the seniority structure. A district administrator reported that union officials agreed to the decentralization provision only because it was contingent on a supermajority faculty vote at each individual school. In its first year, most schools stuck with the old system. As one principal explained, even though he would like to try decentralized hiring, his staff, prompted by the union, was dead set against it and was able to block the measure. Despite the semblance of more flexible hiring in the language of the contract, the district still largely assigned teachers to schools with little or no input from principals.[27]

To sum up, as districts struggle to cope with teacher shortages and changing labor markets, their efforts can be constrained on several fronts. Inadequate technology makes it impossible for districts to build the institutional capacity to gather, sort, and distribute detailed information about their human resource needs, their applicant pool, and their efforts to bridge them. Without good information, policy responses may be shots in the dark. Even with adequate technology, districts can struggle with an organizational culture that is out of line with or resistant to change. This can be a powerful force that frustrates innovation. Finally, in many districts, HR activities are governed by collective bargaining agreements that, despite their good intentions, can frustrate efforts to try more flexible and responsive approaches to hiring and recruiting teachers by putting a premium on job control and uniformity.

A Non-finding: School Leaders Agnostic About Certification Debate

The above findings were accompanied by an equally significant non-finding. With very few exceptions (noted below), the respondents were agnostic with regard to the current debate surrounding the effectiveness of teacher certification and its effect on recruitment and hiring.

At the risk of oversimplifying, the current certification debate can be characterized by two perspectives. On one hand, some argue that the completion of the requirements to become

a certified teacher in public schools adds little value to student achievement. Worse, the certification requirement is seen as a barrier to otherwise capable individuals entering the teaching profession.[28] Others counter that certification requirements are essential for quality control and that they play a critical role in preparing individuals to become effective teachers. If there is a problem with certification, these proponents continue, it is that the existing certification programs do not go far enough in terms of training teachers for success.[29]

When this project began, one of its hypotheses was that certification requirements constrain public school districts in their ability to fill job openings with quality teachers. The interview guides, consequently, included specific questions regarding teacher certification and the impact of these requirements on staffing. The questions were asked of all respondents, on the assumption that charter and private schools, presumably less constrained by certification issues, would provide a useful point of comparison.

The opinions expressed regarding the certification issue were nearly overwhelming in their uniformity. With few exceptions, the respondents were essentially uninterested in the question of whether or not individuals met specific state-mandated requirements to become a teacher. The respondents were similarly consistent in their assessment that the certification requirement did not present a serious constraint on their ability to hire teachers. In fact, even charter and private schools administrators, who were not required to hire certified teachers, expressed a preference for state-certified teachers. Some private schools had developed their own hiring criteria that required their teachers to meet the state certification requirements.[30]

While these school leaders were uninterested in the academic debate swirling around the certification issue, they did have opinions about what was necessary to prepare an individual to teach. When asked to articulate what a teacher needed to know in order to be successful, the respondents identified very similar traits: content/subject area knowledge, pedagogy, and some experience instructing children. In short, what they wanted in a new teacher were precisely the qualities that state certification requirements imply. But, these school officials were equally quick to note that the presence of a teaching credential did not guarantee that an individual actually possessed these qualities. In fact, during discussions about teacher preparation, several of the respondents criticized the teacher training programs at their local colleges and universities.

The indifference with regard to the certification debate was not universal. One charter school administrator in Philadelphia expressed frustration that her state made it unnecessarily difficult to convert certification from another state.[31] A San Jose area charter principal was more adamant. He maintained that teacher certification requirements presented a superfluous barrier to those wishing to teach. Though he possessed a teaching credential and had taught in the public schools for several years, he declared that all schools should be "released from the bondage of credentialing." Instead, he felt that a bright and motivated person could be taught to teach relatively quickly, primarily through on-the-job training. Those two comments, out of 51 interviews, represent the only expressions of frustration or dissatisfaction with credentialing.

Among those interviewees who had hired people with strong subject matter knowledge but little training in how to teach, we heard mixed results. One charter school principal even expressed something of a conversion. He noted that prior to taking on his current position, he was certain that teacher certification added little value and was simply a needless hurdle for otherwise com-

petent individuals looking to teach. After some negative experiences with putting inexperienced, uncertified teachers in classrooms, he gained a more nuanced perspective on the certification question.

Simply having a teaching credential is not a good predictor of whether someone is a good teacher... but I have learned that I can't just take a talented engineer and ask him to teach math or physics... They [career change teachers] need a lot of support, a lot of help, and some training. We're actually looking into setting up our own certification program.

Even the San Jose principal who had little faith in teacher training programs told the story of the mid-career teacher he hired to teach high school. Put in front of a class with no formal training or other teaching experience, he lasted one day.

The interviews suggest that both sides of the certification polemic miss the real issue. In today's debate about teacher quality, both sides are obsessed with the question: Who ought to be allowed entrée to the profession? This begs a more immediate and important question facing district and school administrators: Among those eligible to teach, how do quality teachers actually end up in classrooms? The nation's teachers, after all, will only be as good as the methods districts and schools use to recruit, select, and place them.

FOOTNOTES

[17]This total figure breaks down to 10 district administrators, 14 public school principals in the target districts, 12 charter school administrators, and 15 administrators from private/parochial schools.

[18]The exceptions were the few respondents from the elite, private independent schools. They were the ones most likely to conduct national searches for teachers, often seeking individuals with advanced degrees. Their market for teachers, consequentially, stretched beyond the region.

[19]This phenomenon was not limited to public school districts. Administrators in some of the Catholic school education offices reported a similar pattern in diocesan schools. Experienced teachers tend to gravitate toward the schools in the more affluent areas. Of course, finding that people recognize the distribution of teachers is uneven across, and even within, school districts, is not new. These descriptions closely parallel what Carroll and his colleagues observed in their quantitative analysis of teacher assignments in California (Carroll et al, 2000). That study found that not only was the distribution uneven, it was inequitable: the more experienced and better-qualified a teacher was, the more likely he or she would teach a relatively more affluent and white student population.

[20]See, for example, Hare et al, 2000, or Sack, J.L (1999, March 24) "All Class of Special Education Teachers Needed Throughout the Nation," Education Week.

[21]Calculated from the U.S. Department of Education, National Center for Education Statistics, Common Core of Data surveys tables, prepared March 2001.

[22]Since November 2001, the Philadelphia school district has seen a major overhaul and the policies discussed here may have changed.

[23]It was rare to find private or charter schools offering any sort of housing assistance; most likely, they lacked the capacity and/or economies of scale to explore these types of incentives.

[24]These administrators felt that the lure of more money was the most common motivator for the shift to the public schools. They also were quick to note that some did return to the parochial school, trading the cut in pay for a more attractive work environment.

[25]In order to encourage principals to buy into the concept, as well to enable them to take advantage of its potential, the district paid special attention to training and support. Orientation sessions were provided prior to the system coming on-line, and district personnel provide them with assistance when necessary. The district itself appears to continue to work closely with the vendor, adjusting and enhancing the product periodically.

[26]As difficult as organizational culture is to describe, there is an intuitive sense about what it is. To borrow the oft-used expression, we seem to know it when we see it. The site visits to the human resource departments provided an opportunity for us, like prospective teacher candidates, to see the department setting. In some of the office spaces, poor lighting, stained carpets, and maze-like hallways filled with filing cabinets gave us a sense of the working environment. In other places, good lighting, plants, banks of computers, clear and helpful signs, and comfortable waiting areas gave an entirely different impression. Of course, culture goes beyond appearances, but they can nonetheless reflect the values, norms, and behaviors that inform how people accomplish their day-to-day tasks. Not surprisingly, these environmental observations reinforced the descriptions presented in the interviews.

[27]Although not mentioned in the interviews, in collective bargaining agreements may also constraint experiments with differential teacher compensation. Nevertheless, in Philadelphia, a city with a strong union presence, the district was able to offer cash incentives to teachers in particular subjects (e.g. Spanish, special education, chemistry, and physics) and to teachers who worked in particular, tough-to-staff schools. While arriving at this innovation may not have been simple, it was possible.

[28]See Ballou, D. and Podgursky, M. (1998). "The case against teacher certification." The Public Interest. 132, 13–17; Finn Jr., C.E. & Kanstoroom, M. (2000). "Improving, empowering, dismantling." The Public Interest. 140. 64–73; and, Walsh, K. (2001). Teacher certification reconsidered: Stumbling for quality. The Abell Foundation. Baltimore, MD.

[29]See, for example, the report from the National Commission on Teaching and America's Future, Doing what matters most: Investing in quality teaching. (Darling-Hammond, 1997) and "The research and rhetoric on teacher certification: A response to 'Teacher Certification Reconsidered,'" (Darling-Hammond, 2001).

[30]Some private schools would only hire individuals who had obtained their teaching credential as a matter of policy. We reviewed a sample of resumes from applicants for positions at a private independent K–12 school and in one of the large Catholic archdiocese systems. Of the applicants who did not have teaching credentials there were few who resembled the proverbial, laid-off Boeing engineer who was now interested in teaching high school physics. More common among the uncertified applicants were former insurance adjusters and day care workers who were now interested in teaching. They did not appear to be overly promising candidates.

[31]The Pennsylvania charter school provisions require 75 of a school's teachers to be certified.

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6: IMPLICATIONS AND RECOMMENDATIONS

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This study's findings about how districts responded to the celebrated teacher shortage of 1999–2002 suggest a two-fold challenge for policy makers working on teacher recruitment:

— First, because of the uneven impact of the shortage problem, governments need to approach teacher recruitment strategically, identifying the particular policies that best match the problems their schools or districts are facing.

— Second, choosing the right mix of policies is only part of the challenge. It is equally important that districts and states identify and remove institutional barriers that thwart policy implementation and constrain innovation.

Governments Should Approach Teacher Shortages Strategically

At first blush, suggesting that education officials pursue a strategic approach to understanding problems and setting policy appears a bit facile. After all, few policy makers would perceive themselves as impulsive when it comes to responding to public problems. Nevertheless, the variation in the nature of the teacher shortage problem combined with the widespread and urgent tone of the reporting about it created the potential for unintended missteps. Our findings suggest that the problem's variation required a strategic approach. The next two sections look at what this injunction to be strategic means for school districts and state policy makers when it comes to staffing schools.

District Policy Makers[32]

The challenge for policy makers is to choose the policy option or options that best fit their needs. Doing so requires at least four things: a) a determination of the frequency and type of shortage problem their district faces b) an identification of factors that contribute to the problem c) a search for polices that match the problem, and d) an assessment of the costs and benefits involved in various policy choices.

Problem frequency and type. As self-evident as it sounds, district should begin by looking at how often their shortages occur and in what places over a particular period of time. A telling exercise would be to track subject area vacancies and out-of-field teaching across schools over the course of the school

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year (or several school years).

Contributing factors. Though more difficult, district should also investigate what factors contribute to the problem, including general economic trends, changes in enrollment, and state policies. Although district may exert little influence over these external factors, such forces nevertheless have implications for policy responses (see Matching policies to problems below). Districts might also investigate internal factors (e.g., via exit interviews with employees) that contribute to the problem, including working conditions at schools or bureaucratic barriers in the hiring and placement process.

Matching policies to problems. Once a district can articulate the specific dimensions of the challenges it faces, it should identify policies that best match those problems. Finding the right alignment is a practical, not theoretical question. A district may have little impact, for example, on its ability to recruit teachers if it expands its overall recruitment effort by increasing advertising and making visits to job fairs in other states and ignores the fact that prospective teachers cannot afford the cost of living in the area. Finding the right match between problems and policies is, of course, easier said than done. The program that administrators read about in the New York Times might be a tremendous fit for the district in which it is being used, but it might have little to do with the combination of problems found in their region of the country. Table 7 (see following page) presents a sample of policy responses that match different recruitment and hiring problems.

Assessing relative costs and benefits. Assuming district resources are finite, policy makers need to weigh how cost-effective various approach are. If a district lacks teachers in particular subject areas or faces an uneven distribution of teachers across its schools, it would be well served to focus its efforts on recruiting for particular subjects or specific schools, rather than across the board. Targeting incentives to boost recruitment for hard-to-fill teaching slots simply makes sense, especially when resources are tight. It also necessitates the differential treatment of some teachers, and consequently, could require changes to collective bargaining agreements or other administrative rules.[33]

State Policy Makers

From a district perspective, the recommendation to match policies to problems is straightforward. But school districts are not the only jurisdictions with roles in education policy. State policy makers are also well aware of the problem of ensuring an adequate supply of quality teachers and, to a degree, the concept of matching policies to problems applies at these levels as well. The nature of the shortage problem, for example, will most likely vary across the schools in any given state.

Given this, state policy makers should seek options that are flexible enough to accommodate the variation in the nature of the problem. Restrictive policies that mandate one particular approach or program may benefit some schools, but do little to help others. Policy makers should carefully examine proposed policy changes in terms of their impact on the variety of challenges that may be present across schools and districts.

Targeted benefits for teachers willing to teach in the toughest schools would be one cost effective way to start. The example from Florida mentioned in the introduction raises this very issue. In response to the teacher shortage, Governor Bush and the Florida legislature chose to offer $1,000 signing bonuses to new teachers hired

TABLE 7
MATCHING PROBLEMS AND POLICIES

TYPE OF PROBLEM	POLICY RESPONSE(S)
GENERAL SHORTAGE OF APPLICANTS	– MORE AGGRESSIVE RECRUITMENT IN REGION – EXPANDED RECRUITMENT TO OTHER REGIONS – RECRUITMENT OF NON-TRADITIONAL TEACHER PROSPECTS – ALTERNATIVE CERTIFICATION PROGRAMS
LACK OF TEACHERS IN PARTICULAR SUBJECTS/AREAS	– MORE AGGRESSIVE RECRUITMENT IN SUBJECT AREAS – EXPANSION OF RECRUITMENT AREA – RECRUITMENT OF NON-TRADITIONAL TEACHER PROSPECTS – SUBJECT AREA ECONOMIC INCENTIVES
INABILITY TO RECRUIT FOR PARTICULAR SCHOOLS (WORKING CONDITIONS)	– SCHOOL-BASED ECONOMIC INCENTIVES – TARGETED RECRUITMENT EFFORTS FOR HARD-TO-STAFF SCHOOLS
OPPORTUNITY COSTS / LABOR MARKET COMPETITION	– SALARY INCREASES – SIGNING BONUSES – CAREER ADVANCEMENT/INCREASED PROFESSIONALISM
DEBT BURDEN	– LOAN REPAYMENT / FORGIVENESS – LOW INTEREST LOANS AND STIPENDS
AFFORDABLE HOUSING	– HOUSING ALLOWANCES – MORTGAGE ASSISTANCE – PROVISION OF SUBSIDIZED HOUSING
LACK OF QUALITY APPLICANTS	– TEACHING ACADEMIES/"GROW YOUR OWN" – RECRUITMENT OF NON-TRADITIONAL TEACHER PROSPECTS – EXPANDED RECRUITMENT TO OTHER REGIONS
BARRIERS TO ENTRY (CREDENTIALING)	– TEACHING ACADEMIES/"GROW YOUR OWN" – ALTERNATIVE CERTIFICATION PROGRAMS
RED TAPE/BUREAUCRATIZATION OF THE HIRING PROCESS	– SIMPLIFICATION OR STREAMLINING OF HIRING PROCEDURES – INVESTMENT IN INFORMATION TECHNOLOGY – ON THE SPOT CONTRACTS

by the state's public schools. Some districts even matched that offer with an additional $1,000. The policy might have enticed a few more teachers to enter the profession, but it did nothing to address the distribution of teachers throughout the state. One cannot help but wonder what the impact might have been if the legislature increased the bonus program to $5,000, but made it available only to teachers willing to teach in the school districts having the greatest difficulty finding teachers.

The purpose of this example is not to take Governor Bush or the Florida legislature to task, nor to suggest that new teachers in suburban districts do not merit an extra $1,000. Rather, our point is to illustrate how state policymakers may be in a position to address the distribution problem if they approach it strategically.

Policy Makers Should Remove Institutional Barriers

Our interviews suggest that policy makers should also address institutional constraints that might limit the chances that a policy will have the desired effect. Four areas deserve particular attention.

Technology. While technology is not a silver bullet, our interviews suggest that it is an important investment toward strategic human resource management. In order to be effective in a competitive job market, districts need access to good information that they can analyze. Antiquated technology makes this almost impossible.

Training and People. New approaches to recruitment and hiring, including new technology, have professional development implications for human resource personnel. If HR directors are expected to procure new data management systems, they may need extra training about what to look for; principals and teachers need training on how to use self-serve intranets or call-center services. Human resource staff may need training in labor market analysis (external and internal), customer service, and strategic "human capital" management. A department might need "new blood" with a human resource background. Ignoring training and people leaves implementation to chance.

Collective Bargaining. District that are rethinking how they place teachers may need to negotiate with unions about how current and new teachers are assigned to schools and who assigns them. Districts that are considering offering bonuses for teaching in hard-to-staff schools or subject areas also have to look at collective bargaining agreements as they consider the kinds of teachers they want to reward, how they will identify these teachers, how they will pay them, and how much they will pay them.[34] In districts with strong unions, policies that attempt to be more strategic by offering differentiated solutions and support have to be negotiated.

Certification. If a district targets non-traditional candidates, it needs to consider a variety of routes to certification—alternative credentialing, accelerated credentialing, internship programs—as well as traditional university-based teacher preparation coursework. Above all, the quality of these pathways matters. The school officials interviewed articulated a clear preference for the qualities that certification implies, but they were equally clear in expressing their skepticism about the ability of training programs to impart those traits in new teachers.

IN SOME CASES, REMOVING INSTITUTIONAL BARRIERS AND INVESTING IN NEW CAPACITY MAY NOT ALWAYS MAKE SENSE. THE COST OF NEW TECHNOLOGY OR INCREASED ANALYTICAL CAPACITY MAY BE TOO HIGH; THE POLITICAL BARRIERS TO LONG-TERM INVESTMENT MAY BE TOO HIGH. IN THAT CASE, LOCALITIES MIGHT PURSUE A MORE RADICAL OPTION: THE CREATION OF A NEW THIRD-PARTY INSTITUTION TO MONITOR AND IMPROVE THE SUPPLY OF TEACHERS IN THEIR AREA.

A New Institution

In some cases, removing institutional barriers and investing in new capacity may not always make sense. The cost of new technology or increased analytical capacity may be too high; the political barriers to long-term investment may be too high. In that case, localities might pursue a more radical option: the creation of a new third-party institution to monitor and improve the supply of teachers in their area.

Though such an institution does not currently exist anywhere, the idea has an intriguing utility. A new quasi-public institution could track and monitor human resource trends, providing economies of scale so that districts within a locality could share the cost of technology investments and other expertise. Such an institution could serve all districts in a metropolitan area or all districts in a larger rural area. Its mission could include the identification of both aggregate labor market-wide shortages and evidence of maldistribution of human resources among school districts. In discussions with the authors about teacher recruitment and hiring, Paul Hill at the University of Washington originated the idea and highlighted the need for it. He suggests that such an institution could:

— Monitor flows of people into and out of districts and propose actions to remedy shortages.

— Assess and report on performance by surveying parents and teachers and analyzing trends in school quality indicators (e.g., teacher attendance and requests for transfers as well as student achievement and student requests for transfers).

— Analyze the backgrounds of successful educators and suggest how school districts and universities might change their recruitment and training to favor essential traits and skills.

The idea is intriguing because it is well suited to the conclusion that the relevant unit of analysis for examining the flow of teachers is regional, rather than national (or, for that matter, narrowly focused on individual districts). Although much of the above discussion offers advice as to how a district may improve its recruitment or retention efforts, the problem itself extends beyond district lines. From the perspective of an individual district, filling a vacant position with a qualified teacher is a success. The district may be indifferent about where that new teacher comes from, all other factors being equal. If that teacher was hired away from a neighboring district, however, the success merely shifts the problem elsewhere. The capacity to monitor such movements, identify their magnitude, and determine the reasons for the shifts is necessary if policy makers hope

to respond to the problem rather than just shift it around. A third party monitoring body could help address this need. In addition, such information should enable education officials beyond the district level to identify inter-district distributional problems and to craft appropriate policy remedies.

Such an institution might also provide a way to overcome something of a collective action problem. Practically speaking, the costs associated with collecting data on regional economic and employment trends may be beyond the reach of any one district. Districts also have little incentive to share information with one another as they often see themselves as competing for the same candidates. The creation of a regional institution may be one way to overcome those prohibitive individual costs while producing an important benefit for all of the districts in the area. Given both the limits of the national SASS data and the general lack of data management capacity within districts, a regional third party data clearinghouse and analysis effort might help districts and researchers better understand the flow of teachers into and out of the classroom.

FOOTNOTES

[42]For a more comprehensive discussion of how districts can approach the problem of teacher recruitment and retention more strategically, see Murphy, P. and Novak E. (2002), Coping with Teacher Shortages: A Resource Guide, Baltimore: Annie E. Casey Foundation.

[43]This notion of costs and benefits also extends to recognizing the contribution of teachers at different points of their career. For example, a district where the cost of housing is high may wish to negotiate low cost apartments as a benefit for new teachers. The program may enable them to recruit a group of young instructors who otherwise would have avoided the area. For a teacher already working in the district, however, the prospect of a subsidized apartment may have little appeal. Instead, a public-private program that provides mortgage or down payment assistance may be a better fit for the established teacher contemplating home ownership. Ideally, a district could afford both. The reality is that it will be forced to weigh the relative costs and benefits. A forgivable or low interest loan may cost more than an apartment subsidy, but the additional cost may be worth it if it means retaining an experienced teacher. Such an analysis, of course, can only be conducted if a district can monitor what drives changes in its personnel.

[44]For discussion of innovations in teacher compensation see Hassel, Bryan, C. (May 2002) Better Pay for Better Teaching: Making Teacher Compensation Pay Off in the Age of Accountability. Washington, D. C.: The Progressive Policy Institute.

GIVEN BOTH THE LIMITS OF THE NATIONAL SASS DATA AND THE GENERAL LACK OF DATA MANAGEMENT CAPACITY WITHIN DISTRICTS, A REGIONAL THIRD PARTY DATA CLEARINGHOUSE AND ANALYSIS EFFORT MIGHT HELP DISTRICTS AND RESEARCHERS BETTER UNDERSTAND THE FLOW OF TEACHERS INTO AND OUT OF THE CLASSROOM.

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7: CONCLUSION

During the 1999–2000 school year, public school districts across the country hired approximately 45,000 teachers after the first day of classes. This estimate represents some unknown portion of the total number of vacant teaching positions that year. Unfortunately, data limitations prevent calculating that important figure. What can be inferred, however, is that the share of late-filled positions were distributed unevenly across the country, with urban districts with high numbers of poor and minority students accounting for a disproportionate share of the vacancies. Schools in the West and South also were grappling with a relatively larger gap between the supply and demand. For most districts, the subject areas of math, science, special education, and language instruction are the hardest to fill.

Different factors contributed to these shortages. While most of the country felt the growing economy's effect on the labor market in the late 1990s, other elements were less universal. In some regions, growing enrollments outstripped the ability of districts to staff classrooms. In other parts of the country, the high cost of housing discouraged potential teachers from seeking jobs in areas where they could not afford to live. And, for some metropolitan areas, most of the schools were able to fill their positions while the central city school district was scrambling to hire teachers after the school year started. Given this variation, regions emerge as a sensible unit of analysis in discussing teacher shortages as well as contemplating policy responses.

The policies that public schools used in response to the scarcity of teachers were equally varied. The human resource directors we interviewed perceived financial incentives to be the most effective strategy for addressing the recruitment challenge. They were less enthusiastic about policies designed to draw more individuals into teaching such as alternative routes to certification or teaching academies. Principals and district officials did not express strong opinions one way or another as to the efficacy of traditional education programs relative to alternative forms of teacher preparation. Finally, as far as school administrators were concerned, certification requirements did not emerge as a major impediment to hiring quality teachers.

The findings reported here are not earth shattering. For some, they merely confirm what has been understood for some time, namely that the teacher shortage is best understood as a lack of teachers in key subjects and/or affecting particular schools. That acknowledged, what is striking is that relatively few policy responses implemented over the past three years reflect this understanding. Instead, many elected officials and administrators appear to have reacted to the dramatic tales of a nation-wide teacher shortage before they understood the specifics of the problem in their own state or region. Many

THE NEED TO REFORM HOW DISTRICTS MANAGE TEACHERS WILL REMAIN REGARDLESS OF WHETHER IT MAKES NEWSPAPER HEADLINES. IT IS TIME TO REDEFINE HOW EDUCATION POLICY MAKERS APPROACH THEIR HUMAN RESOURCE NEEDS WITH AN EYE TO ADDRESSING BOTH PERSISTENT AND SYSTEMIC DISTRIBUTIONAL PROBLEMS ASSOCIATED WITH THE SUPPLY/DEMAND EQUATION, AS WELL AS THE INSTITUTIONAL CONSTRAINTS THAT LIMIT THEIR ABILITY TO COPE WITH THEM.

of the consequences of these policy choices are quite positive. For example, as a result of concern over the supply of educators, many teachers now find a little more money in their paycheck each month. Some new teachers even receive a bonus as well. These are not bad things.

What may be problematic, however, is that despite all of the media attention paid to the teacher shortage, and the accompanying policy debates, little may have been done to address the most pressing elements of the issue, at least to date. Urban school districts serving large numbers of poor and minority children will still start the year without teachers for some classrooms. Math, science, and foreign language teachers are still hard to find. And, institutional limitations continue to present major obstacles to efforts aimed at more efficiently addressing human resource issues. This report recommends that districts look to carefully match policy options to their particular problems. It also notes, however, that the successful implementation of policy may necessitate changing what district human resource departments do and how they do it. These institutional changes include investing in technology and human resource expertise, working to change bureaucratic cultures in central office departments, and negotiating changes in collective bargaining agreements so districts and schools can be have more flexibility in the recruitment and assignment of teachers.

Although this study and its recommendations have focused primarily on the recruitment of teachers, the issues at stake extend beyond simply having enough teachers standing in front of classrooms. The need to reform how districts manage teachers will remain regardless of whether it makes newspaper headlines. The implementation of federal No Child Left Behind and state budget crises are likely to expose the shortcomings of current human resource management practices even more. We conclude that it is time to redefine how education policy makers approach their human resource needs with an eye to addressing both persistent and systemic distributional problems associated with the supply/demand equation, as well as the institutional constraints that limit their ability to cope with them. If the policy responses to date represent the net effect of recent efforts to address these deficiencies, it would seem that a great opportunity has been lost.

APPENDIX A:

Estimates of teacher late-fill rates by state (sass 1999–2000)

STATE	LATE HIRES*	TOTAL TEACHERS**	LATE-FILL RATE
ALABAMA	922	51,891	1.8%
ALASKA	518	9,286	5.6%
ARIZONA	1,136	47,295	2.4%
ARKANSAS	286	33,500	0.9%
CALIFORNIA	6,896	299,836	2.3%
COLORADO	549	44,420	1.2%
CONNECTICUT	646	44,166	1.5%
DELAWARE	160	8,009	2.0%
DISTRICT OF COLUMBIA	88	5,395	1.6%
FLORIDA	2,974	141,651	2.1%
GEORGIA	1,831	96,246	1.9%
HAWAII	636	10,735	5.9%
IDAHO	70	14,899	0.5%
ILLINOIS	1,977	130,056	1.5%
INDIANA	468	61,152	0.8%
IOWA	158	37,823	0.4%
KANSAS	257	34,268	0.7%
KENTUCKY	624	43,341	1.4%
LOUISIANA	1,216	54,333	2.2%
MAINE	161	19,108	0.8%
MARYLAND	483	51,734	0.9%
MASSACHUSETTS	722	80,647	0.9%
MICHIGAN	841	100,752	0.8%
MINNESOTA	579	63,873	0.9%
MISSISSIPPI	551	33,661	1.6%
MISSOURI	351	66,744	0.5%
MONTANA	112	11,004	1.0%
NEBRASKA	149	20,619	0.7%
NEVADA	391	19,334	2.0%
NEW HAMPSHIRE	156	16,170	1.0%
NEW JERSEY	1,557	108,809	1.4%
NEW MEXICO	535	20,488	2.6%
NEW YORK	3,720	211,724	1.8%
NORTH CAROLINA	1,509	84,125	1.8%
NORTH DAKOTA	37	7,878	0.5%
OHIO	649	120,839	0.5%
OKLAHOMA	904	45,180	2.0%
OREGON	355	31,193	1.1%
PENNSYLVANIA	754	120,522	0.6%
RHODE ISLAND	200	12,899	1.6%
SOUTH CAROLINA	833	46,195	1.8%
SOUTH DAKOTA	67	11,040	0.6%
TENNESSEE	809	59,317	1.4%
TEXAS	3,833	266,083	1.4%
UTAH	164	23,119	0.7%
VERMONT	150	8,885	1.7%
VIRGINIA	1,486	90,181	1.6%
WASHINGTON	826	61,943	1.3%
WEST VIRGINIA	370	20,977	1.8%
WISCONSIN	383	61,816	0.6%
WYOMING	39	7,568	0.5%
TOTAL	**45,088**	**3,072,729**	**1.5%**

*Those teachers hired after the start of the school year.

** Teaching positions ("head counts") NOT full-time equivalents.

APPENDIX B:

Human Resource Director Survey

Please answer the following questions based upon your experiences. Where you do not have exact numbers, please give your best estimate. Thank you.

Teacher Recruitment Questions, School Year 2000–01

1. For the current school year, how many full-time teaching positions does your district have? _____

2. How many teacher vacancies did your district have to fill for the start of the 2000–2001 school year? _____

3. At the start of the school year, how many of those vacancies were:

   a. Filled by certified teachers in their subject area _____
   b. Filled by certified teachers out of their subject area _____
   c. Filled by teachers holding emergency credentials or certificate _____
   d. Filled by teachers without a public school teaching credential _____
   e. Still vacant _____

4. Which of the following best describes those individuals teaching with emergency credentials or temporary certificates: (check one)

   _____ Mid-career individuals previously employed in a field outside of education
   _____ Former teacher aides/substitutes/para-professionals
   _____ Recent college graduates without education degrees
   _____ Individuals re-entering the workforce
   _____ Other _____

5. Each district has schools that potential teachers are more attracted to, and others at which they are less interested in working.

   Please roughly estimate how many applicants per position your district receives for vacancies at:

   a. the **most desirable elementary** school? _____
   b. the **least desirable elementary** school? _____
   c. the **most desirable secondary** school? _____
   d. the **least desirable secondary** school? _____

6. How many applications of qualified candidates does your district currently have on file? _____

7. Does your district receive applicants that do not meet state requirements?

_____ No If yes, roughly how many ? _____

8. What do you do with applicant resumes that do not meet state certification? (check one)

_____ Keep them in a separate file
_____ Circulate them with the others
_____ Discard them
_____ Other: _____

Recruitment methods

9. Some districts have used different methods to increase the number of applicants and assist in recruiting new teachers. For the methods below that your district has tried, please assess their effectiveness in increasing the number of applicants for teaching positions. (circle number that best describes your assessment)

	VERY EFFECTIVE ←					→ NOT APPLICABLE
Alternative credentialing procedures	5	4	3	2	1	0
Waiver of credential requirements	5	4	3	2	1	0
Higher overall teacher salaries	5	4	3	2	1	0
Cash bonuses for new hires	5	4	3	2	1	0
Loan forgiveness or tuition reimbursement	5	4	3	2	1	0
Housing allowance or mortgage assistance	5	4	3	2	1	0
Recruiting applicants from other areas/states	5	4	3	2	1	0
Recruiting applicants from other countries	5	4	3	2	1	0
Recruiting applicants from non-teaching profession	5	4	3	2	1	0
Teacher training academies	5	4	3	2	1	0
Specialty firms for teaching hiring	5	4	3	2	1	0
Other _____	5	4	3	2	1	0

10. In your view, what conditions in your district make it relatively difficult to draw in teacher candidates? (check all that apply)

_____ Complex student population in comparison to neighboring districts
_____ Low salaries in comparison to neighboring districts
_____ Competitive labor market in your region
_____ Convenience for commuting
_____ Other: _____

11. What are the sources for your best applicants? (check any or all that apply)

_____ Local university education programs
_____ Education programs in other regions or states
_____ Candidates serving in other districts
_____ Candidates serving in private schools
_____ Mid-career individuals previously employed in a field outside of education
_____ Former teacher aides/substitutes/para-professionals
_____ Recent college graduates without education degrees
_____ Individuals re-entering the workforce
_____ Other, please specify: _____

12. Some districts have used different methods to help them retain teachers from one year to the next. For the methods below that your district has tried, please assess their effectiveness in increasing the number of applicants for teaching positions (circle number that best describes your assessment).

	VERY EFFECTIVE ←					→ NOT APPLICABLE
Retention bonuses	5	4	3	2	1	0
Recognition programs (e.g., "master" teachers)	5	4	3	2	1	0
Mentoring programs	5	4	3	2	1	0
Teacher training and professional development	5	4	3	2	1	0
Other _____	5	4	3	2	1	0

13. When teachers leave positions in your district, which of the following describes the most common reason? (check one)

_____ Retirement
_____ Accepted a teaching job in another district
_____ Accepted employment outside of education
_____ Left workforce
_____ Do not know
_____ Other, please specify: _____

14. Which of the following describes the second most common reason for leaving a teaching position in your district? (check one)

_____ Retirement
_____ Accepted a teaching job in another district
_____ Accepted employment outside of education
_____ Left workforce
_____ Do not know
_____ Other, please specify: _____

15. Does your district have a system to track changes in labor patterns and enrollment to anticipate future hiring needs? (please circle)

YES NO

16. Sometimes, individuals with certain attributes, training, or experience turn out to be more effective at their job than others. Does your district monitor patterns in teacher performance and longevity to guide your hiring decisions? (please circle)

YES NO

17. How has the shortage affected schools in your district? (For instance, has your district had to contribute more resources toward recruiting? Is there a decrease in school moral?)

18. Is there anything else you think that we should know?

APPENDIX C:

District Administrator Interview Protocol

1. Review the study's purpose

2. Q: Description of respondent's job responsibilities
   a. How long in job; background, etc.

3. Q: How "labor is divided" in the district's hiring process?
   What does the central office do? What do the schools do?

4. Q: Do you think that teachers are in short supply?

5. Q: In your opinion, which factor(s) account for the shortage?

6. Q: Is it easier to find teachers for some schools than others? (I.e. is this a problem of distribution?)

7. Q: In your district's survey response, you mentioned that you use the following strategies to recruit teachers [NOTE SURVEY RESPONSES]
   a. What is your impression of the effectiveness of these efforts? (And why?)

8. Q: How are teachers selected from the applicant pool?
   a. What signals or cues do you use that suggest high or low quality?
   b. What is your impression of the quality of that pool and subsequent hires? Changes over time?
   c. Where do your teachers come from (view of supply)?
   d. What drives demand–why do you need new hires?

9. Q: Why do teachers leave?
   a. What programs do you have in place to assist new teachers and retain current ones?
   b. What is your impression of their effectiveness?

10. Q: What are other districts/schools doing in your region to recruit/retain?
    What is your impression of those efforts?

11. Q: How have state policies affected your work? (Standards-based reform; state-level recruitment efforts…)

12. Q: What would you do differently if you could?

13. Q: Who else should we talk to? (We would do a follow up phone call with these people.).

14. Q: What questions should we have asked?

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APPENDIX D: Interview Respondents

RESPONDENT TYPE	MESA/ PHOENIX	SEMINOLE/ ORLANDO	DEKALB/ ATLANTA	SANTA CLARA/ SAN JOSE	SAN DIEGO/ LONG BEACH	PHILADELPHIA	GARLAND/ DALLAS	TOTALS
DISTRICT HUMAN RESOURCE ADMINISTRATOR	1	1	2	1	3	1	1	10
PUBLIC SCHOOL ADMINISTRATORS	3	3	1	4	1	2		14
CHARTER SCHOOL ADMINISTRATORS	2	2	1	2	2	2	1	12
PRIVATE SECULAR SCHOOL ADMINISTRATORS			2	1		1	1	5
PAROCHIAL SCHOOL ADMINISTRATORS	1	2	2	1	1	1	2	10
TOTALS	7	8	8	9	7	7	5	51

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